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LED LCD TV

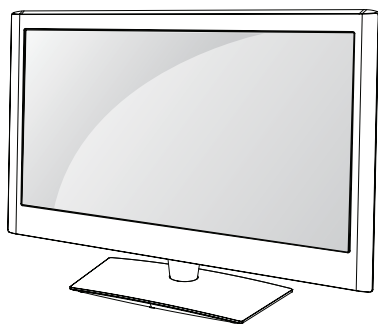
SERVICE MANUAL

CHASSIS : LJ01R

MODEL : 22LV2500 22LV2500-SG

CAUTION

BEFORE SERVICING THE CHASSIS,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



P/NO : MFL67289415 (1108-REV00)

Printed in Korea

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SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and Exploded View.

It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent Shock, Fire, or other Hazards.

Do not modify the original design without permission of manufacturer.

General Guidance

An **isolation Transformer** should always be used during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and its components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Before returning the receiver to the customer,

always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

Leakage Current Cold Check(Antenna Cold Check)

With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.

If the exposed metallic part has a return path to the chassis, the measured resistance should be between $1M\Omega$ and $5.2M\Omega$.

When the exposed metal has no return path to the chassis the reading must be infinite.

An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)

Plug the AC cord directly into the AC outlet.

Do not use a line Isolation Transformer during this check.

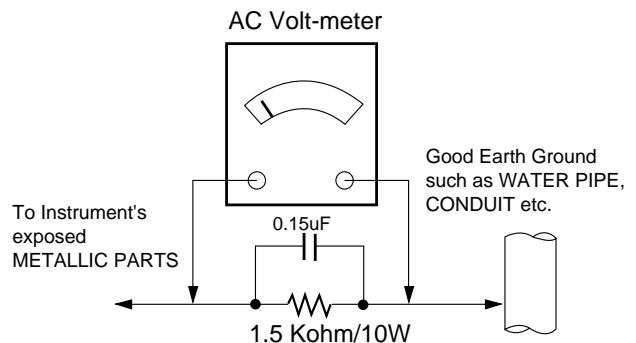
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.

Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which corresponds to 0.5mA.

In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit



SERVICING PRECAUTIONS

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the **SAFETY PRECAUTIONS** on page 3 of this publication.

NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
 - a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
 - b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
 - c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.**CAUTION:** A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe. Do not test high voltage by "drawing an arc".
3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)
CAUTION: This is a flammable mixture.
Unless specified otherwise in this service manual, lubrication of contacts is not required.
5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.
Always remove the test receiver ground lead last.
8. *Use with this receiver only the test fixtures specified in this service manual.*

CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called *Electrostatically Sensitive (ES) Devices*. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the

unit under test.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range or 500°F to 600°F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire-bristle (0.5 inch, or 1.25cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
 - a. Allow the soldering iron tip to reach normal temperature. (500°F to 600°F)
 - b. Heat the component lead until the solder melts.
 - c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.
CAUTION: Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique
 - a. Allow the soldering iron tip to reach a normal temperature (500°F to 600°F)
 - b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
 - c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
CAUTION: Work quickly to avoid overheating the circuit board printed foil.
 - d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

IC Remove/Replacement

Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

"Small-Signal" Discrete Transistor

Removal/Replacement

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

Power Output, Transistor Device

Removal/Replacement

1. Heat and remove all solder from around the transistor leads.
2. Remove the heat sink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heat sink.

Diode Removal/Replacement

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular y to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

Fuse and Conventional Resistor

Removal/Replacement

1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.
3. Solder the connections.

CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections

To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. Carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

At Other Connections

Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.

CAUTION: Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.

SPECIFICATION

NOTE : Specifications and others are subject to change without notice for improvement.

1. Application range

This spec sheet is applied LCD TV with LJ01M/P/R chassis.

2. Requirement for Test

Each part is tested as below without special appointment.

- 1) Temperature: 25 °C \pm 5 °C
- 2) Relative Humidity: 65 \pm 10 %
- 3) Power Voltage : Standard input voltage(100-240V~, 50/60Hz)
* Standard Voltage of each product is marked by models
- 4) Specification and performance of each parts are followed each drawing and specification by part number in accordance with BOM.
- 5) The receiver must be operated for about 5 minutes prior to the adjustment.

3. Test method

- 1) Performance: LGE TV test method followed
- 2) Demanded other specification
 - Safety : UL, CSA, IEC specification
 - EMC: FCC, ICES, IEC specification

4. General Specification(TV)

No	Item	Specification			Remark
1	Receivable System	1) SBTV/NTSC/PAL-M/PAL-N			
2	Available Channel	1) VHF : 02 ~ 13 2) UHF : 14 ~ 69 3) DTV : 07 ~ 69 4) CATV : 01 ~ 135			
3	Input Voltage	1) AC 100 - 240V~ 50/60Hz			
4	Market	Central and South AMERICA			
5	Screen Size	19 inch Wide (1366 x 768)			19LV2500
		22 inch Wide (1366 x 768)			22LV2500
		26 inch Wide (1366 x 768)			26LV2500
		32 inch Wide (1366 x 768)			32LV2500
		32 inch Wide (1920 x 1080)			32LV3500, 32LV3400, 32LK450, 32LK430
		37 inch Wide (1920 x 1080)			37LV3500
		42 inch Wide (1920 x 1080)			42LV3500, 42LV3400 42LK450
		47 inch Wide (1920 x 1080)			47LV3500
6	Aspect Ratio	16:9			
7	Tuning System	FS			
8	LCD Module	T260XW04-V9	HD, 60Hz	AUO	26LK330
		T315XW03-VF	HD, 60Hz	AUO	32LK330
		LC320WXN-SCA2		LGD	
		LC320WXE-SCA1		LGD	
		VVX32H109G00		IPS	
		T315HW04-V9	FHD, 60Hz	AUO	32LK430
		T315HW04-V9	FHD, 60Hz	AUO	32LK450
		LC320WUN-SDA1		LGD	
		LC320WUE-SCA1		LGD	
		T315XW06-V3	HD, 60Hz	AUO	32LV2500
		LC320EXN-SDA1		LGD	
		VVX32H110G00		IPS	
		LC320EUN-SDV2	FHD, 60Hz	LGD	32LV3400
		V315H3-LE7	FHD, 60Hz	CMI	32LV3500
		T315HW07-V8		AUO	
		LC320EUN-SDV2		LGD	
		LC370WUE-SCA1	FHD, 60Hz	LGD	37LK450
		T370HW05-V1	FHD, 60Hz	AUO	37LV3500
		LC370EUN-SDV2		LGD	
		T420HW09-V0	FHD, 60Hz	AUO	42LK450
		LC420WUE-SCA2		LGD	
		LC420EUN-SDV3	FHD, 60Hz	LGD	42LV3400, 42LV3500
		T420HW08-V1	FHD, 60Hz	AUO	42LV3500
		LC470WUE-SCA2	FHD, 60Hz	LGD	47LK450
		LC470EUE-SDV1	FHD, 60Hz	LGD	47LV3500
		M185XW01-VD	HD, 60Hz	AUO	19LV2500
		M215HGE-L10	FHD, 60Hz	CMI	22LV2500
		M215HW01-VB		AUO	
		T260XW06-V3	HD, 60Hz	AUO	26LV2500
		LC260EXN-SDA1		LGD	
9	Operating Environment	Temp : 0 ~ 40 deg Humidity : ~ 80 %			
10	Storage Environment	Temp : -20 ~ 60 deg Humidity : -85 %			

5. Chrominance & Luminance (19/22LV2500-SG)

No	Item			Min	Typ	Max	Unit	Remark
1	Max Luminance (Center 1-point / Full White Pattern)		Module	200	250		cd/m ²	19"
				200	250			22"(AUO) , 22"(CMI)
			SET	150	200		cd/m ²	19"
				150	200			22"(AUO) , 22"(CMI)
2	Luminance uniformity				1.3			
3	Color coordinate	RED	X	Typ. -0.03	0.634	Typ. +0.03		19"
					0.635			22"(AUO)
					0.637			22"(CMI)
			Y		0.351			19"
					0.349			22"(AUO)
					0.351			22"(CMI)
		GREEN	X		0.334			19"
					0.332			22"(AUO)
					0.319			22"(CMI)
			Y		0.605			19"
					0.619			22"(AUO)
					0.626			22"(CMI)
		BLUE	X		0.146			19"
					0.155			22"(AUO)
					0.145			22"(CMI)
			Y		0.059			19"
					0.055			22"(AUO)
					0.061			22"(CMI)
		WHITE	X		0.313			19"
					0.313			22"(AUO)
					0.303			22"(CMI)
			Y		0.329			19"
					0.329			22"(AUO)
					0.329			22"(CMI)
3.	Contrast ratio			700	1000			19"
				600	1000			22"(AUO)
				700	1000			22"(CMI)
4.	Color Temperature	Cool	0.254	0.269	0.284	<Test Condition> * The W/B Tolerance is ± 0.015 for Adjustment		
			0.258	0.273	0.288			
		Standard	0.270	0.285	0.300			
			0.278	0.293	0.308			
		Warm	0.298	0.313	0.324			
			0.314	0.329	0.344			

6. Component Video Input (Y, CB/PB, CR/PR)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock	Proposed
1.	720*576	15.625	50.000	13.5	SDTV 576I
2.	720*480	15.73	60	13.5135	SDTV ,DVD 480I
3.	720*480	15.73	59.94	13.5	SDTV ,DVD 480I
4.	720*480	31.50	60	27.027	SDTV 480P
5.	720*480	31.47	59.94	27.0	SDTV 480P
6.	720*576	31.250	50.000	27.000	SDTV 576P
7.	1280*720	37.500	50.000	74.25	HDTV 720P
8.	1280*720	45.00	60.00	74.25	HDTV 720P
9.	1280*720	44.96	59.94	74.176	HDTV 720P
10.	1920*1080	28.125	50.00	74.250	HDTV 1080I
11.	1920*1080	33.75	60.00	74.25	HDTV 1080I
12.	1920*1080	33.72	59.94	74.176	HDTV 1080I
13.	1920*1080	56.250	50.00	148.50	HDTV 1080P
14.	1920*1080	67.500	60	148.50	HDTV 1080P
15.	1920*1080	67.432	59.94	148.352	HDTV 1080P
16.	1920*1080	27.000	24.000	74.25	HDTV 1080P
17.	1920*1080	26.97	23.976	74.176	HDTV 1080P
18.	1920*1080	33.75	30.000	74.25	HDTV 1080P
19.	1920*1080	33.71	29.97	74.176	HDTV 1080P

7. RGB Input (PC)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock	Proposed	
	PC				DDC	
1.	640*350	31.468	70.09	25.17	EGA	X
2.	720*400	31.469	70.08	28.32	DOS	O
3.	640*480	31.469	59.94	25.17	VESA(VGA)	O
4.	800*600	37.879	60.31	40.00	VESA(SVGA)	O
5.	1024*768	48.363	60.00	65.00	VESA(XGA)	O
6.	1280*768	47.78	59.870	79.5	CVT(WXGA)	O
7.	1360*768	47.712	60.015	85.50	VESA(WXGA)	O
8.	1280*1024	63.981	60.020	108.00	VESA(SXGA)	O
9.	1920*1080	67.5	60	148.5	HDTV 1080P	O

•RGB PC Monitor Range Limits

Min Vertical Freq - 58 Hz
 Max Vertical Freq - 62 Hz
 Min Horiz. Freq - 30 kHz
 Max Horiz. Freq - 83 kHz
 Pixel Clock - 160 MHz

8. HDMI input (PC/DTV)

No	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock		Proposed	
	PC					DDC	
1.	640*350	31.468	70.09	25.17		EGA	X
2.	720*400	31.469	70.08	28.32		DOS	O
3.	640*480	31.469	59.94	25.17		VESA(VGA)	O
4.	800*600	37.879	60.31	40.00		VESA(SVGA)	O
5.	1024*768	48.363	60.00	65.00		VESA(XGA)	O
6.	1360*768	47.712	60.015	85.50		VESA (WXGA)	O
7.	1280*1024	63.981	60.020	108.00		VESA (SXGA)	O
8.	1920*1080	67.500	60.000	148.50		HDTV 1080P	O
	DTV						
1	720*480	31.469	59.940	27.000		SDTV 480P	
2	720*480	31.500	60	27.027		SDTV 480P	
3	720*576	31.250	50.000	27.000		SDTV 576P	
4	1280*720	37.500	50.000	74.25		HDTV 720P	
5	1280*720	45.00	60.00	74.25		HDTV 720P	
6	1280*720	44.96	59.94	74.176		HDTV 720P	
7	1920*1080	28.125	50.000	74.25		HDTV 1080I	
8	1920*1080	33.75	60.00	74.25		HDTV 1080I	
9	1920*1080	33.72	59.94	74.176		HDTV 1080I	
10	1920*1080	56.250	50.000	148.50		HDTV 1080P	
11	1920*1080	67.500	60	148.50		HDTV 1080P	
12	1920*1080	67.432	59.94	148.352		HDTV 1080P	
13	1920*1080	27.000	24.000	74.25		HDTV 1080P	
14	1920*1080	26.97	23.976	74.176		HDTV 1080P	
15	1920*1080	33.75	30.000	74.25		HDTV 1080P	
16	1920*1080	33.71	29.97	74.176		HDTV 1080P	

•HDMI Monitor Range Limits
 Min Vertical Freq - 58 Hz
 Min Horiz. Freq - 30 kHz
 Pixel Clock - 160 MHz

Max Vertical Freq - 62 Hz
 Max Horiz. Freq - 83 kHz

ADJUSTMENT INSTRUCTION

1. Application Range

This specification sheet is applied to all of the LCD TV with LJ01M/LJ01P/LJ01R chassis.

2. Designation

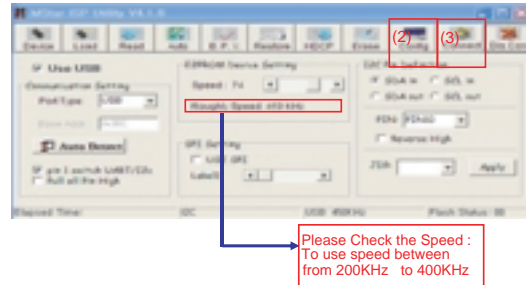
- 1) The adjustment is according to the order which is designated and which must be followed, according to the plan which can be changed only on agreeing.
- 2) Power Adjustment: Free Voltage
- 3) Magnetic Field Condition: Nil.
- 4) Input signal Unit: Product Specification Standard
- 5) Reserve after operation: Above 5 Minutes (Heat Run)
Temperature : at $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$
Relative humidity : $65\% \pm 10\%$
Input voltage : $100 \sim 220\text{ V}\sim$, 50/60 Hz
- 6) Adjustment equipments: Color Analyzer(CA-210 or CA-110), DDC Adjustment Jig equipment, Service remote control.
- 7) Push the "IN STOP" key - For memory initialization.

Case1 : Software version up

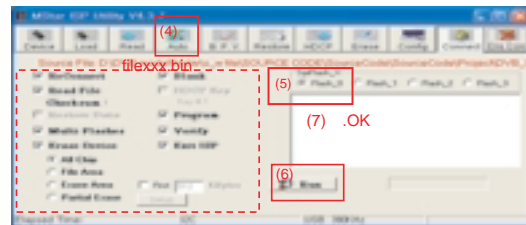
1. After downloading S/W by USB, TV set will reboot automatically
2. Push "In-stop" key
3. Push "Power on" key
4. Function inspection
5. After function inspection, Push "In-stop" key.

Case2 : Function check at the assembly line

1. When TV set is entering on the assembly line, Push "In-stop" key at first.
2. Push "Power on" key for turning it on.
-> If you push "Power on" key, TV set will recover channel information by itself.
3. After function inspection, Push "In-stop" key.

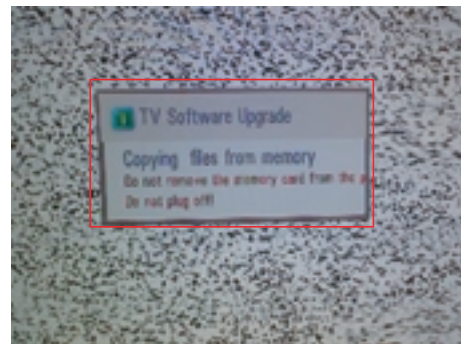


- 5) Click "Auto" tab and set as below
- 6) Click "Run".
- 7) After downloading, check "OK" message.

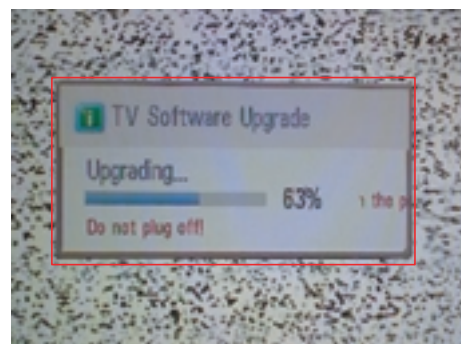


* USB DOWNLOAD

- 1) Put the USB Stick to the USB socket
- 2) Automatically detecting update file in USB Stick
- If your downloaded program version in USB Stick is Low, it didn't work. But your downloaded version is High, USB data is automatically detecting
- 3) Show the message "Copying files from memory"



- 4) Updating is starting.

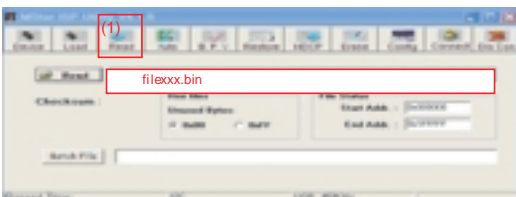


3. Main PCB check process

* APC - After Manual-Insult, executing APC

* Boot file Download

- 1) Execute ISP program "Mstar ISP Utility" and then click "Config" tab.



- 2) Set as below, and then click "Auto Detect" and check "OK" message
If "Error" is displayed, Check connection between computer, jig, and set.
- 3) Click "Read" tab, and then load download file (XXXX.bin) by clicking "Read"
- 4) Click "Connect" tab. If "Can't" is displayed, check connection between computer, jig, and set.



- 5) Uploading completed, The TV will restart automatically.
 6) If your TV is turned on, check your updated version and Tool option.(explain the Tool option, next stage)
 * If downloading version is more high than your TV have, TV can lost all channel data. In this case, you have to channel recover. if all channel data is cleared, you didn't have a DTV/ATV test on production line.

*** After downloading, have to adjust Tool Option again.**

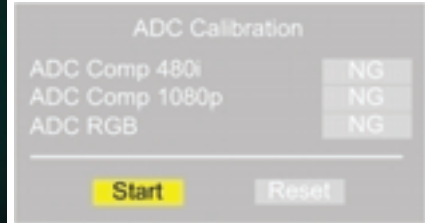
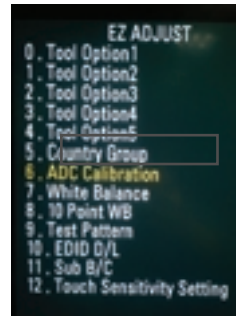
- 1) Push "IN-START" key in service remote control.
- 2) Select "Tool Option 1" and Push "OK" button.
- 3) Punch in the number. (Each model has their number)
- 4) Completed selecting Tool option.

Module	Module	Tool option1	Tool option2	Tool option3	Tool option4	Tool option5
42LV4500-SA	LGD	26496	19478	55337	10520	8448
32LV4500-SA	LGD	18304	19478	55337	10520	8480
55LV3500-SA	LGD	46944	19478	55337	10520	8448
47LV3500-SA	LGD	34656	19478	55337	10520	256
42LV3500-SA	AUO	26472	19478	55337	10520	352
42LV3500-SA	LGD	26464	19478	55337	10520	288
37LV3500-SA	AUO	22376	19478	55337	10520	352
37LV3500-SA	LGD	22368	19478	55337	10520	288
32LV3500-SA	CMI	18276	19478	55337	10520	352
32LV3500-SA	AUO	18280	19478	55337	10520	352
32LV3500-SA	LGD	18272	19478	55337	10520	288
42LV3400-SA	LGD	26592	9226	53289	10520	288
32LV3400-SA	LGD	18400	9226	53289	10520	288
32LV2500-SA	CMI	18212	19478	55337	10520	352
32LV2500-SA	AUO	18216	19478	55337	10520	352
32LV2500-SA	LGD	18208	19478	55337	10520	288
26LV2500-SA	AUO	14120	8714	55337	10520	288
26LV2500-SA	LGD	14112	8714	55337	10520	288
22LV2500-SA	CMI	10020	8714	55337	10520	288
22LV2500-SA	AUO	10024	8714	55337	10520	288
19LV2500-SA	AUO	5928	8714	55337	10520	288
19LV2500-SA	CMI	5924	8714	55337	10520	288
19LV2500-SA	LGD	5920	8714	55337	10520	288
47LK450-SA	LGD	34432	18966	55305	10520	8450
42LK450-SA	LGD	26240	18966	55305	10520	8450
42LK450-SA	AUO	26248	18966	55305	10520	290
37LK450-SA	LGD	22144	18966	55305	10520	8450
37LK450-SA	AUO	22152	18966	55305	10520	290
32LK450-SA	AUO	18056	18966	55305	10520	290
32LK450-SA	LGD	18048	18966	55305	10520	8482
32LK450-SA	LGD (CoMS)	18048	18966	55305	10520	8450
32LK430-SA	AUO	18024	18966	51209	10520	290
32LK330-SB	AUO	17992	18966	51209	10520	290
32LK330-SB	LGD	17984	18966	51209	10520	290
32LK330-SB	LGD (CoMS)	17984	18966	51209	10520	258
26LK330-SB	AUO	13896	18966	51209	10520	290

3.1. ADC Process

(1) ADC

- Enter Service Mode by pushing "ADJ" key,
- Enter Internal ADC mode by pushing "G" key at "6. ADC Calibration"



<Caution> Using 'power on' button of the Adjustment R/C, power on TV.

* ADC Calibration Protocol (RS232)

No	Item	CMD1	CMD2	Data0	
Enter Adjust Mode	Adjust 'Mode In'	A	A	0 0	When transfer the 'Mode In', Carry the command.
ADC adjust	ADC Adjust	A	D	1 0	Automatically adjustment (The use of a internal pattern)

Adjust Sequence

- aa 00 00 [Enter Adjust Mode]
 - xb 00 40 [Component1 Input (480i)]
 - ad 00 10 [Adjust 480i Comp1]
 - xb 00 60 [RGB Input (1024*768)]
 - ad 00 10 [Adjust 1024*768 RGB]
 - aa 00 90 End Adjust mode
- * Required equipment : Adjustment R/C.

3.2. Function Check

* Check display and sound

- Check Input and Signal items. (cf. work instructions)

- 1) TV
- 2) AV (SCART1/SCART2/ CVBS)
- 3) COMPONENT (480i)
- 4) RGB (PC : 1024 x 768 @ 60hz)
- 5) HDMI
- 6) PC Audio In

* Display and Sound check is executed by Remote control.

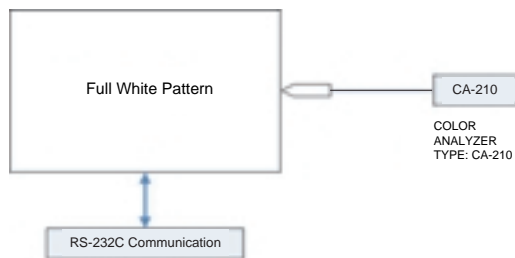
4. Total Assembly line process

4.1. Adjustment Preparation

- W/B Equipment condition
CA210 : CH 9, Test signal : Inner pattern (85IRE)
- Above 5 minutes H/run in the inner pattern. ("power on" key of adjust remote control)

Cool	13,000	K	X=0.269(±0.002)	<Test Signal> Inner pattern (216gray,85IRE)
			Y=0.273(±0.002)	
Medium	9,300	K	X=0.285(±0.002)	
			Y=0.293(±0.002)	
Warm	6,500	K	X=0.313(±0.002)	
			Y=0.329(±0.002)	

- Connecting picture of the measuring instrument
(On Automatic control)
Inside PATTERN is used when W/B is controlled. Connect to auto controller or push Adjustment R/C POWER ON -> Enter the mode of White-Balance, the pattern will come out.



- Auto-control interface and directions
 - Adjust in the place where the influx of light like floodlight around is blocked. (illumination is less than 10 lux).
 - Adhere closely the Color Analyzer (CA210) to the module less than 10 cm distance, keep it with the surface of the Module and Color Analyzer's probe vertically. (80° ~ 100°).
 - Aging time
 - After aging start, keep the power on (no suspension of power supply) and heat-run over 5 minutes.
 - Using 'no signal' or 'full white pattern' or the others, check the back light on.

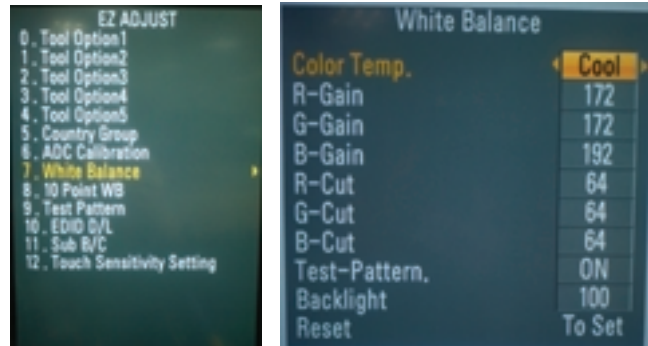
- Auto adjustment Map(RS-232C)
RS-232C COMMAND
[CMD ID DATA]
Wb 00 00 White Balance Start
Wb 00 ff White Balance End

	RS-232C COMMAND [CMD ID DATA]			MIN	CENTER (DEFAULT)			MAX
	Cool	Mid	Warm		Cool	Mid	Warm	
R Gain	jg	Ja	jd	00	172	192	192	192
G Gain	jh	Jb	je	00	172	192	192	192
B Gain	ji	Jc	jf	00	192	192	172	192
R Cut					64	64	64	128
G Cut					64	64	64	128
B Cut					64	64	64	128

<Caution>

Color Temperature : COOL, Medium, Warm.
One of R Gain/G Gain/ B Gain should be kept on 0xC0, and adjust other two lower than C0.
(when R/G/B Gain are all C0, it is the FULL Dynamic Range of Module)

- Manual W/B process using adjusts Remote control.
 - After enter Service Mode by pushing "ADJ" key,
 - Enter White Balance by pushing "G" key at "6. White Balance".



- After done all adjustments, Press "In-start" button and compare Tool option and Area option value with its BOM, if it is correctly same then unplug the AC cable. If it is not same, then correct it same with BOM and unplug AC cable. For correct it to the model's module from factory Jig model.
- Push the "IN STOP" key after completing the function inspection. And Mechanical Power Switch must be set "ON".

4.2. DDC EDID Write (RGB 128Byte)

- Connect D-sub Signal Cable to D-sub Jack.
- Write EDID Data to EEPROM(24C02) by using DDC2B protocol.
- Check whether written EDID data is correct or not.
- For SVC main Assembly, EDID have to be downloaded to Insert Process in advance.

4.3. DDC EDID Write (HDMI 256Byte)

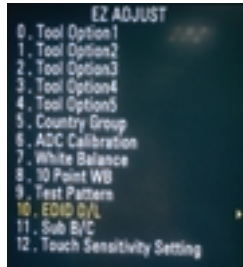
- Connect HDMI Signal Cable to HDMI Jack.
- Write EDID Data to EEPROM(24C02) by using DDC2B protocol.
- Check whether written EDID data is correct or not.
- For SVC main Assembly, EDID have to be downloaded to Insert Process in advance.

4.4. EDID DATA

- All Data : HEXA Value
- Changeable Data :
 - *: Serial No : Controlled / Data:01
 - ** : Month : Controlled / Data:00
 - ***:Year : Controlled
 - ****:Check sum

4.5. Auto Download

- 1) Press Adj. key on the Adj. Remote control.
- 2) Select EDID D/L menu.
- 3) By pressing Enter key, EDID download will begin
- 4) If Download is successful, OK is display, but If Download is failure, NG is displayed.
- 5) If Download is failure, Re-try downloads.



* Edid data and Model option download (RS232)

NO	Item	CMD1	CMD2	Data0	
Enter download Mode	Download 'Mode In'	A	A	0 0	When transfer the 'Mode In', Carry the command.
EDID data and Model option download	Download	A	E	00 10	Automatically Download (The use of a internal pattern)

- Manual Download

* Caution

- 1) Use the proper signal cable for EDID Download
 - Analog EDID : Pin3 exists
 - Digital EDID : Pin3 exists
- 2) Never connect HDMI & D-sub Cable at the same time.
- 3) Use the proper cables below for EDID Writing
- 4) Download HDMI1, HDMI2, separately because HDMI1 is different from HDMI2

For Analog EDID	For HDMI EDID	
D-sub to D-sub	DVI-D to HDMI or HDMI to HDMI	
		

Item	Condition	Data(Hex)
Manufacturer ID	GSM	1E6D
Version	Digital : 1	01
Revision	Digital : 3	03

1) FHD RGB EDID data(Check sum:ED)

```

0x00  00 FF FF FF FF FF FF 00 1E 6D 01 00 01 01 01 01
0x10  01 15 01 03 68 10 09 78 0A EE 91 A3 54 4C 99 26
0x20  0F 50 54 A1 08 00 81 80 61 40 45 40 31 40 01 01
0x30  01 01 01 01 01 01 02 3A 80 18 71 38 2D 40 58 2C
0x40  45 00 A0 5A 00 00 00 1E 66 21 50 B0 51 00 1B 30
0x50  40 70 36 00 A0 5A 00 00 00 1E 00 00 00 FD 00 3A
0x60  3E 1E 53 10 00 0A 20 20 20 20 20 20 00 00 FC
0x70  00 4C 47 20 54 56 0A 20 20 20 20 20 20 00 ED

```

2) FHD HDMI EDID data

HDMI 1 (Check sum:E2, 99)

```

0x00  00 FF FF FF FF FF FF 00 1E 6D 01 00 01 01 01 01
0x10  01 15 01 03 80 10 09 78 0A EE 91 A3 54 4C 99 26
0x20  0F 50 54 A1 08 00 71 4F 81 80 01 01 01 01 01 01
0x30  01 01 01 01 01 01 02 3A 80 18 71 38 2D 40 58 2C
0x40  45 00 A0 5A 00 00 00 1E 1B 21 50 A0 51 00 1E 30
0x50  48 88 35 00 A0 5A 00 00 00 1C 00 00 00 FD 00 3A
0x60  3E 1E 53 10 00 0A 20 20 20 20 20 20 00 00 FC
0x70  00 4C 47 20 54 56 0A 20 20 20 20 20 20 01 E2
0x80  02 03 26 F1 4E 10 1F 84 13 05 14 03 02 12 20 21
0x90  22 15 01 26 15 07 50 09 57 07 67 03 0C 00 10 00
0xA0  B8 2D E3 05 03 01 01 1D 80 18 71 1C 16 20 58 2C
0xB0  25 00 A0 5A 00 00 00 9E 01 1D 00 72 51 D0 1E 20
0xC0  6E 28 55 00 A0 5A 00 00 00 1E 02 3A 80 18 71 38
0xD0  2D 40 58 2C 45 00 A0 5A 00 00 00 1E 01 1D 00 BC
0xE0  52 D0 1E 20 B8 28 55 40 A0 5A 00 00 00 1E 00 00
0xF0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 99

```

HDMI 2 (Check sum:E2, 89)

```

0x00  00 FF FF FF FF FF FF 00 1E 6D 01 00 01 01 01 01
0x10  01 15 01 03 80 10 09 78 0A EE 91 A3 54 4C 99 26
0x20  0F 50 54 A1 08 00 71 4F 81 80 01 01 01 01 01 01
0x30  01 01 01 01 01 01 02 3A 80 18 71 38 2D 40 58 2C
0x40  45 00 A0 5A 00 00 00 1E 1B 21 50 A0 51 00 1E 30
0x50  48 88 35 00 A0 5A 00 00 00 1C 00 00 00 FD 00 3A
0x60  3E 1E 53 10 00 0A 20 20 20 20 20 20 00 00 FC
0x70  00 4C 47 20 54 56 0A 20 20 20 20 20 20 01 E2
0x80  02 03 26 F1 4E 10 1F 84 13 05 14 03 02 12 20 21
0x90  22 15 01 26 15 07 50 09 57 07 67 03 0C 00 20 00
0xA0  B8 2D E3 05 03 01 01 1D 80 18 71 1C 16 20 58 2C
0xB0  25 00 A0 5A 00 00 00 9E 01 1D 00 72 51 D0 1E 20
0xC0  6E 28 55 00 A0 5A 00 00 00 1E 02 3A 80 18 71 38
0xD0  2D 40 58 2C 45 00 A0 5A 00 00 00 1E 01 1D 00 BC
0xE0  52 D0 1E 20 B8 28 55 40 A0 5A 00 00 00 1E 00 00
0xF0  00 00 00 00 00 00 00 00 00 00 00 00 00 00 89

```

HDMI 3 (Check sum:B4, 45)

```

0x00 00 FF FF FF FF FF FF 00 1E 6D 01 00 01 01 01 01
0x10 01 15 01 03 80 10 09 78 0A EE 91 A3 54 4C 99 26
0x20 0F 50 54 A1 08 00 71 4F 81 80 01 01 01 01 01
0x30 01 01 01 01 01 01 01 1B 21 50 A0 51 00 1E 30 48 88
0x40 45 00 A0 5A 00 00 00 1E 1B 21 50 A0 51 00 1E 30
0x50 48 88 35 00 A0 5A 00 00 00 1C 00 00 00 FD 00 3A
0x60 3E 1E 53 10 00 0A 20 20 20 20 20 20 00 00 FC
0x70 00 4C 47 20 54 56 0A 20 20 20 20 20 20 01 E2
0x80 02 03 26 F1 4E 10 1F 84 13 05 14 03 02 12 20 21
0x90 22 15 01 26 15 07 50 09 57 07 67 03 0C 00 30 00
0xA0 B8 2D E3 05 03 01 01 1D 80 18 71 1C 16 20 58 2C
0xB0 25 00 A0 5A 00 00 00 9E 01 1D 00 72 51 D0 1E 20
0xC0 6E 28 55 00 A0 5A 00 00 00 1E 02 3A 80 18 71 38
0xD0 2D 40 58 2C 45 00 A0 5A 00 00 00 1E 01 1D 00 BC
0xE0 52 D0 1E 20 B8 28 55 40 A0 5A 00 00 00 1E 00 00
0xF0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 79

```

3) HD RGB EDID data(Check sum:CD)

```

Addr 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
0000 00 FF FF FF FF FF FF 00 1E 6D 01 00 01 01 01 01
0010 01 15 01 03 80 10 09 78 0A EE 91 A3 54 4C 99 26
0020 0F 50 54 A1 08 00 81 C0 61 40 45 40 31 40 01 01
0030 01 01 01 01 01 01 01 1B 21 50 A0 51 00 1E 30 48 88
0040 35 00 A0 5A 00 00 00 1C 01 1D 00 72 51 D0 1E 20
0050 6E 28 55 00 A0 5A 00 00 00 1E 00 00 00 FD 00 3A
0060 3E 1F 46 10 00 0A 20 20 20 20 20 20 00 00 FC
0070 00 4C 47 20 54 56 0A 20 20 20 20 20 20 00 CD
0080 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0090 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
00A0 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
00B0 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
00C0 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
00D0 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
00E0 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
00F0 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

```

4) HD HDMI EDID data

HDMI 1 (Check sum:B4, 65)

```

Addr 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
0000 00 FF FF FF FF FF FF 00 1E 6D 01 00 01 01 01 01
0010 01 15 01 03 80 10 09 78 0A EE 91 A3 54 4C 99 26
0020 0F 50 54 A1 08 00 81 C0 61 40 45 40 31 40 01 01
0030 01 01 01 01 01 01 01 1B 21 50 A0 51 00 1E 30 48 88
0040 35 00 A0 5A 00 00 00 1C 01 1D 00 72 51 D0 1E 20
0050 6E 28 55 00 A0 5A 00 00 00 1E 00 00 00 FD 00 3A
0060 3E 1F 46 10 00 0A 20 20 20 20 20 20 00 00 FC
0070 00 4C 47 20 54 56 0A 20 20 20 20 20 20 01 B4
0080 02 03 20 F1 4E 10 1F 84 13 05 14 03 02 12 20 21
0090 22 15 01 26 15 07 50 09 57 07 67 03 0C 00 30 00
00A0 01 1D 80 18 71 1C 16 20 58 2C 25 00 A0 5A 00 00
00B0 00 9E 01 1D 00 80 51 D0 0C 20 40 80 35 00 A0 5A
00C0 00 00 00 1E 8C 0A D0 8A 20 E0 2D 10 10 3E 96 00
00D0 A0 5A 00 00 00 18 02 3A 80 18 71 38 2D 40 58 2C
00E0 45 00 A0 5A 00 00 00 1E 01 1D 80 D0 72 1C 16 20
00F0 10 2C 25 80 A0 5A 00 00 00 9E 00 00 00 00 45

```

HDMI 2 (Check sum:B4, 55)

```

Addr 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
0000 00 FF FF FF FF FF FF 00 1E 6D 01 00 01 01 01 01
0010 01 15 01 03 80 10 09 78 0A EE 91 A3 54 4C 99 26
0020 0F 50 54 A1 08 00 81 C0 61 40 45 40 31 40 01 01
0030 01 01 01 01 01 01 01 1B 21 50 A0 51 00 1E 30 48 88
0040 35 00 A0 5A 00 00 00 1C 01 1D 00 72 51 D0 1E 20
0050 6E 28 55 00 A0 5A 00 00 00 1E 00 00 00 FD 00 3A
0060 3E 1F 46 10 00 0A 20 20 20 20 20 20 00 00 FC
0070 00 4C 47 20 54 56 0A 20 20 20 20 20 20 01 B4
0080 02 03 20 F1 4E 10 1F 84 13 05 14 03 02 12 20 21
0090 22 15 01 26 15 07 50 09 57 07 67 03 0C 00 30 00
00A0 01 1D 80 18 71 1C 16 20 58 2C 25 00 A0 5A 00 00
00B0 00 9E 01 1D 00 80 51 D0 0C 20 40 80 35 00 A0 5A
00C0 00 00 00 1E 8C 0A D0 8A 20 E0 2D 10 10 3E 96 00
00D0 A0 5A 00 00 00 18 02 3A 80 18 71 38 2D 40 58 2C
00E0 45 00 A0 5A 00 00 00 1E 01 1D 80 D0 72 1C 16 20
00F0 10 2C 25 80 A0 5A 00 00 00 9E 00 00 00 00 55

```

HDMI 3 (Check sum:B4, 45)

```

Addr 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
0000 00 FF FF FF FF FF FF 00 1E 6D 01 00 01 01 01 01
0010 01 15 01 03 80 10 09 78 0A EE 91 A3 54 4C 99 26
0020 0F 50 54 A1 08 00 81 C0 61 40 45 40 31 40 01 01
0030 01 01 01 01 01 01 01 1B 21 50 A0 51 00 1E 30 48 88
0040 35 00 A0 5A 00 00 00 1C 01 1D 00 72 51 D0 1E 20
0050 6E 28 55 00 A0 5A 00 00 00 1E 00 00 00 FD 00 3A
0060 3E 1F 46 10 00 0A 20 20 20 20 20 20 00 00 FC
0070 00 4C 47 20 54 56 0A 20 20 20 20 20 20 01 B4
0080 02 03 20 F1 4E 10 1F 84 13 05 14 03 02 12 20 21
0090 22 15 01 26 15 07 50 09 57 07 67 03 0C 00 30 00
00A0 01 1D 80 18 71 1C 16 20 58 2C 25 00 A0 5A 00 00
00B0 00 9E 01 1D 00 80 51 D0 0C 20 40 80 35 00 A0 5A
00C0 00 00 00 1E 8C 0A D0 8A 20 E0 2D 10 10 3E 96 00
00D0 A0 5A 00 00 00 18 02 3A 80 18 71 38 2D 40 58 2C
00E0 45 00 A0 5A 00 00 00 1E 01 1D 80 D0 72 1C 16 20
00F0 10 2C 25 80 A0 5A 00 00 00 9E 00 00 00 00 45

```

- Model List

HD(CCFL)	FHD(CCFL)	HD(LED)	FHD Small(LED)	FHD(LED)
26LK330-SH	32LK450-SG	19LV2500-SG		37LV3500-SG
32LK330-SH	37LK450-SG	22LV2500-SG		42LV3500-SG
	42LK450-SG	26LV2500-SG		47LV3500-SG
	37LK450-SG	32LV2500-SG		55LV3500-SG
	32LK430-SG			

4.5. Outgoing condition Configuration

- When pressing IN-STOP key by SVC remocon, Red LED are blinked alternatively. And then Automatically turn off. (Must not AC power OFF during blinking)

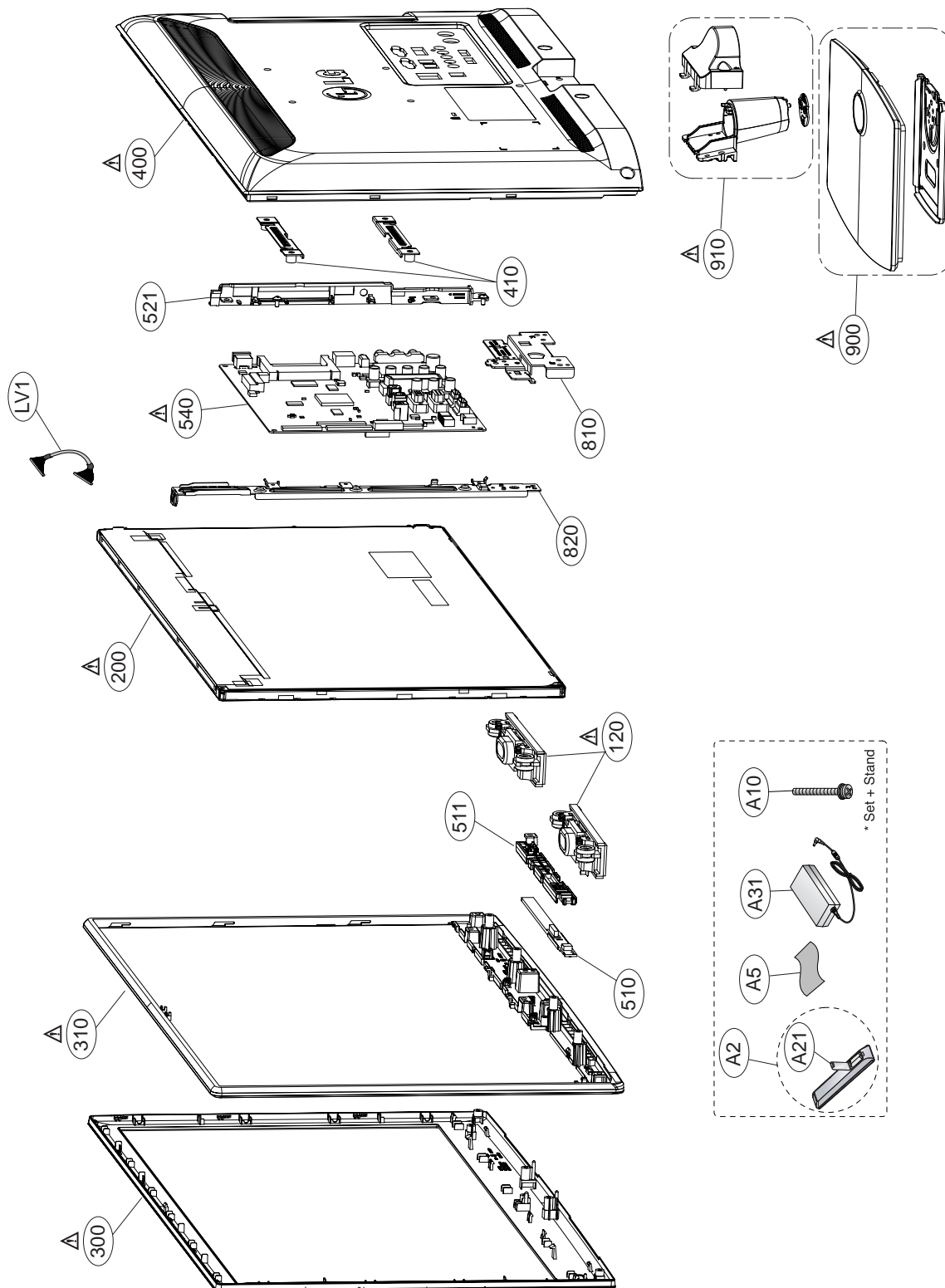
4.6. Hi-pot Test

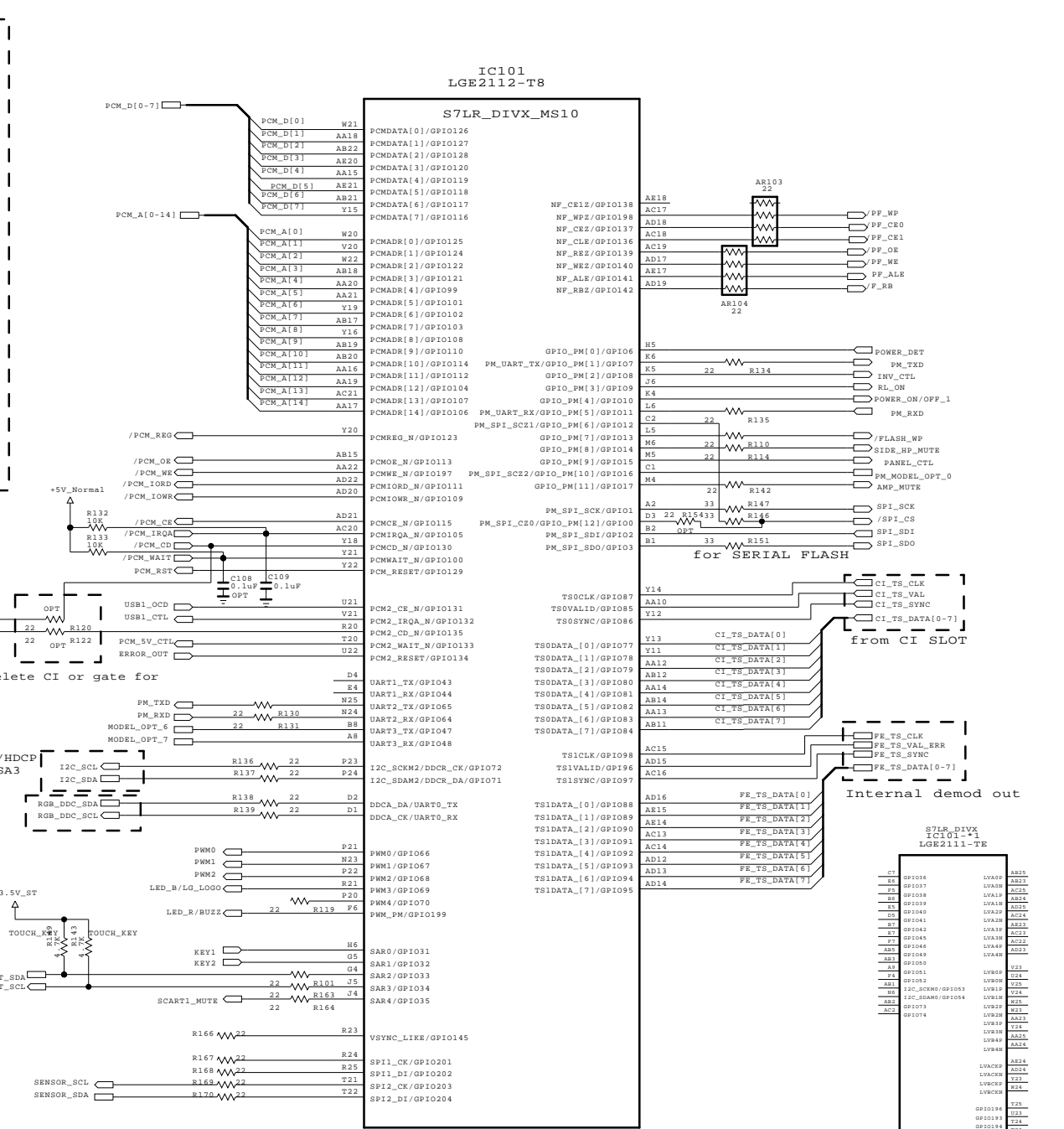
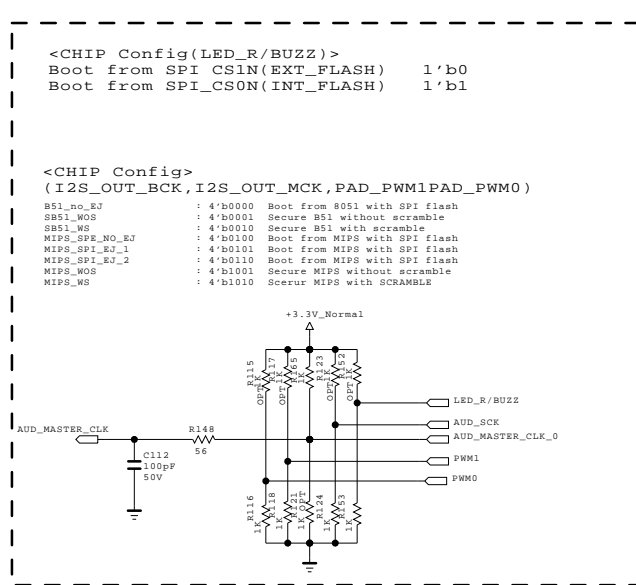
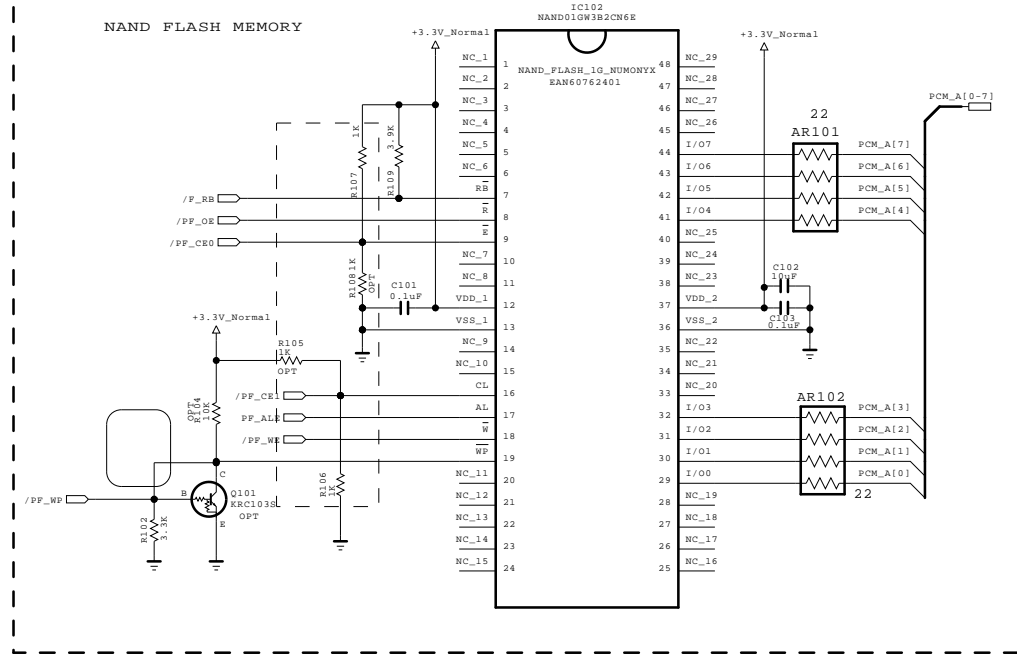
Confirm whether is normal or not when between power board's ac block and GND is impacted on 1.5 kV/min at 100mA(GND) and 3kV/min at 100mA(Signal)

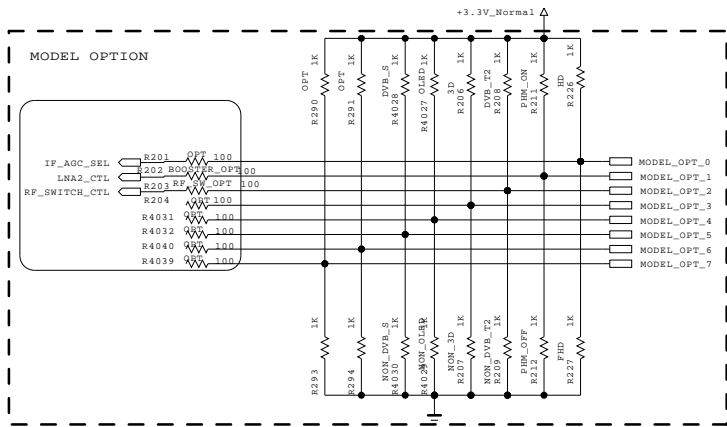
EXPLODED VIEW

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and EXPLODED VIEW. It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards. Do not modify the original design without permission of manufacturer.







PIN NAME	PIN NO.	LOW	HIGH
MODEL_OPT_0	AB3	FHD	HD
MODEL_OPT_1	F4	PHM_OFF	PHM_ON
MODEL_OPT_2	AB2	NON_DVB_T2	DVB_T2
MODEL_OPT_3	T25	NON_3D	3D
MODEL_OPT_4	U23	NON_OLED	OLED
MODEL_OPT_5	T24	NON_DVB_S	DVB_S
MODEL_OPT_6	B8	READY	READY
MODEL_OPT_7	A8	READY	READY

IC101
LGE2112-T8

S7LR_DIVX_MS10

AC4

AC3

AC2

AC1

AC0

AC-1

AC-2

AC-3

AC-4

AC-5

AC-6

AC-7

AC-8

AC-9

AC-10

AC-11

AC-12

AC-13

AC-14

AC-15

AC-16

AC-17

AC-18

AC-19

AC-20

AC-21

AC-22

AC-23

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AC-100

AC-101

AC-102

AC-103

AC-104

AC-105

AC-106

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AC-110

AC-111

AC-112

AC-113

AC-114

AC-115

AC-116

AC-117

AC-118

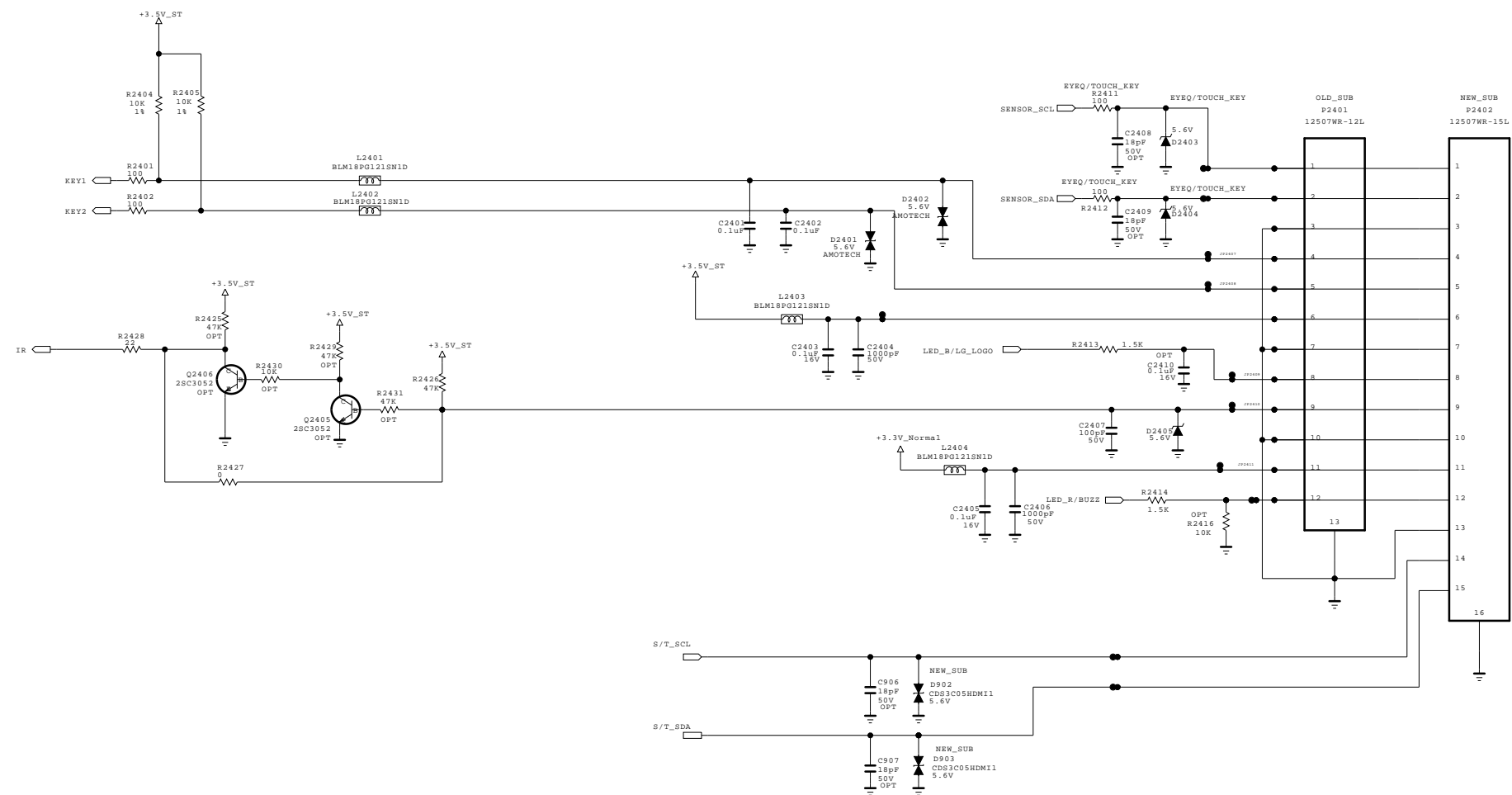
AC-119



AC-120

AC-121

AC-122

CONTROL
IR & LED

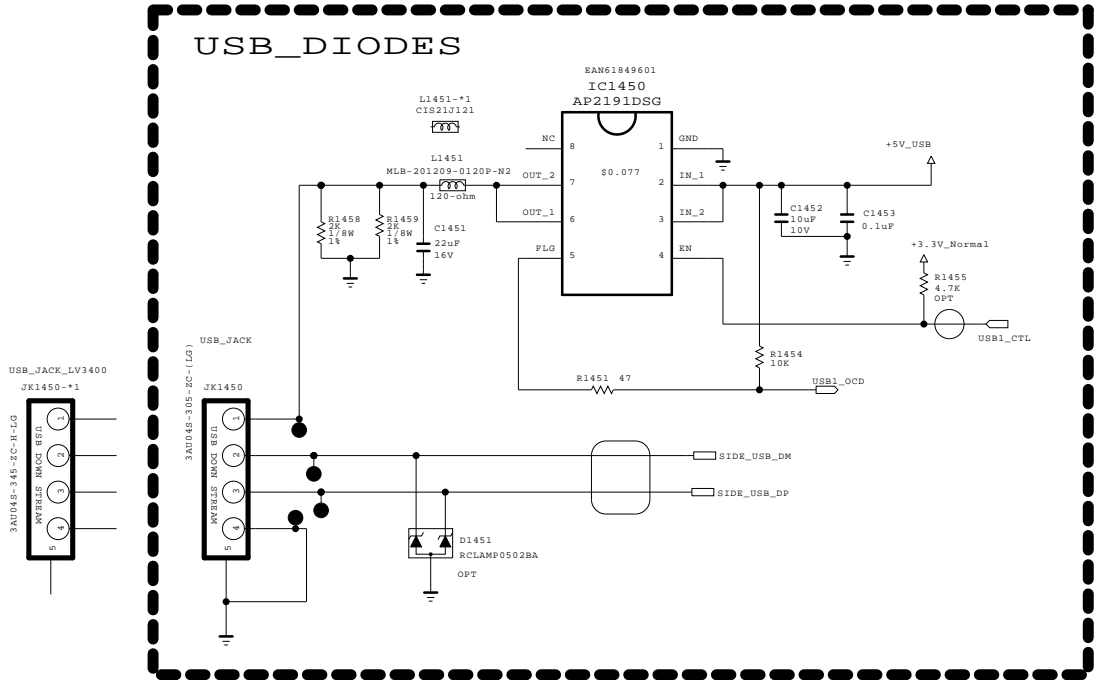




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SECRET
LGElectronics



MODEL	GP3_S7LR	DATE	20110324
BLOCK	IR/CONTROL-L	SHEET	6 /

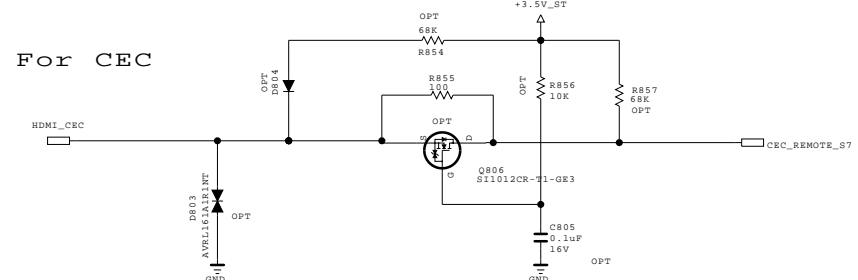
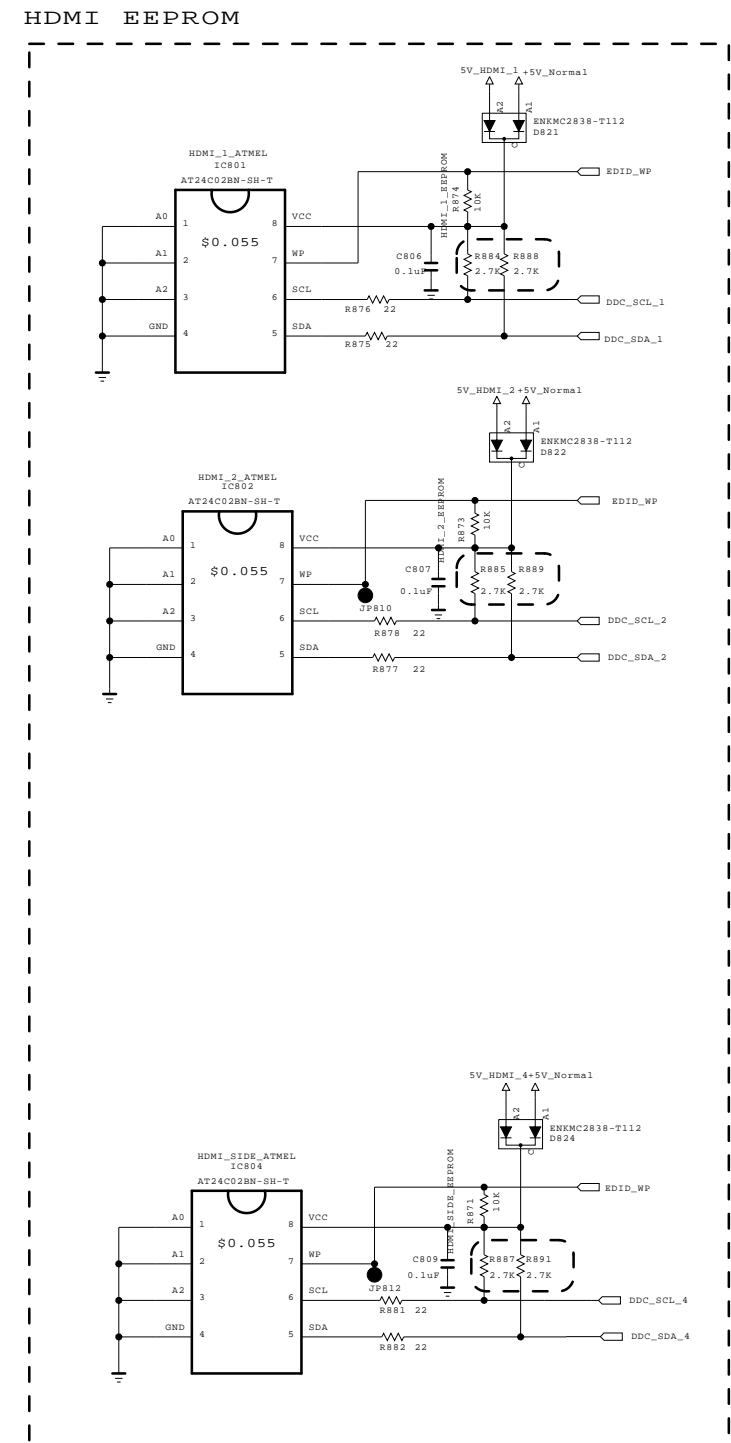
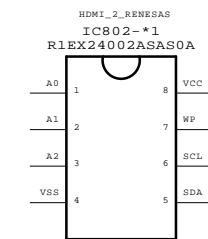
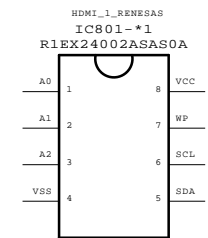
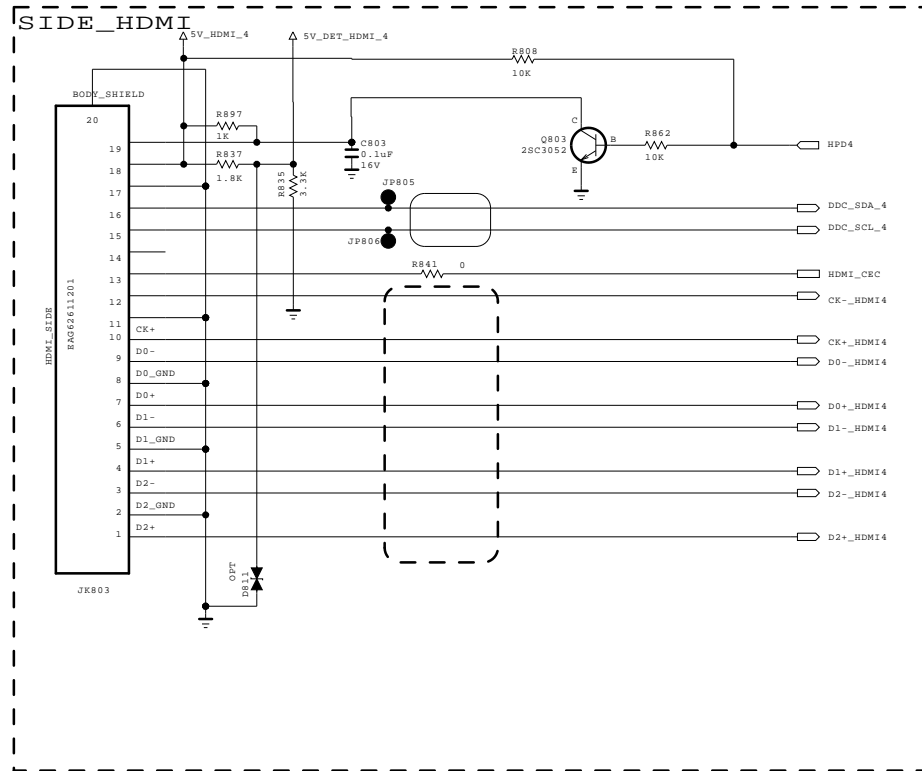
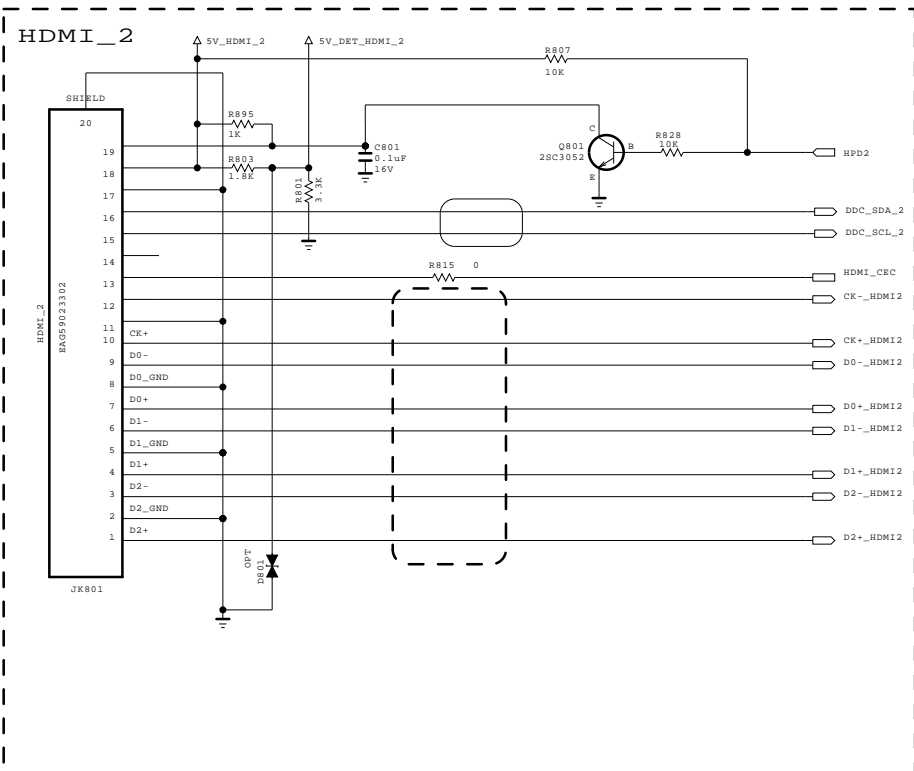
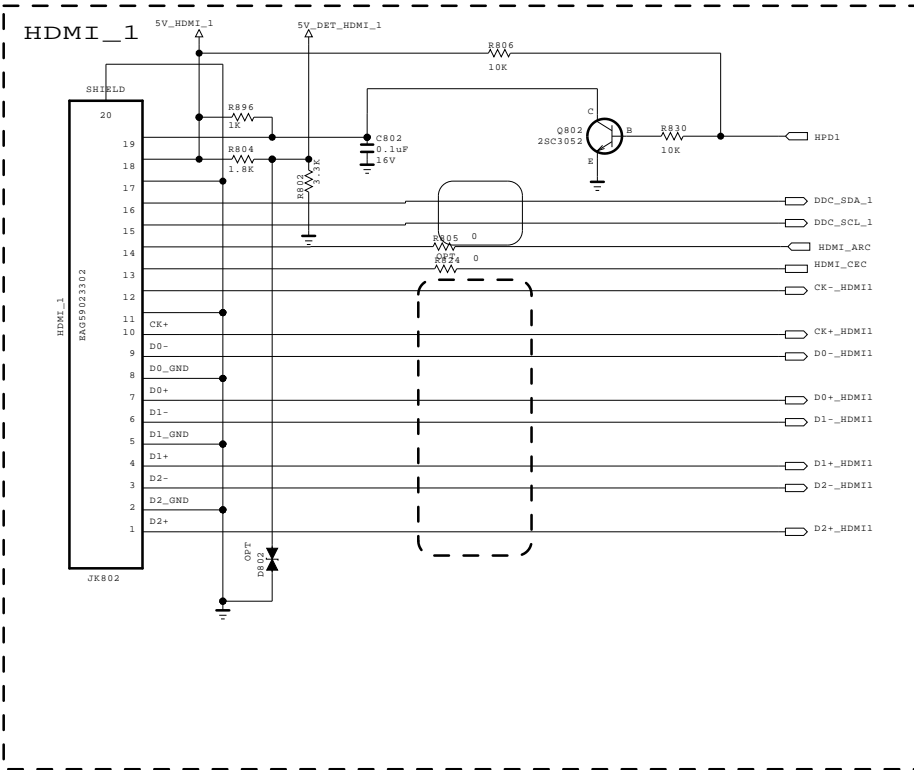




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SECRET
LGElectronics



MODEL	GP2R	DATE	20101023
BLOCK	USB_OCP_DIODE	SHEET	7 /



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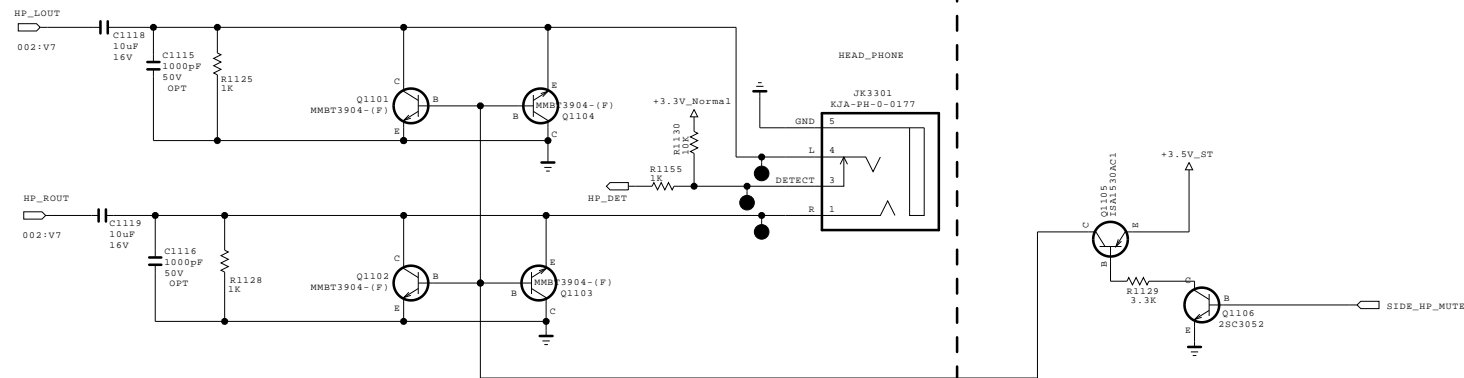
SECRET
LGElectronics

LG ELECTRONICS

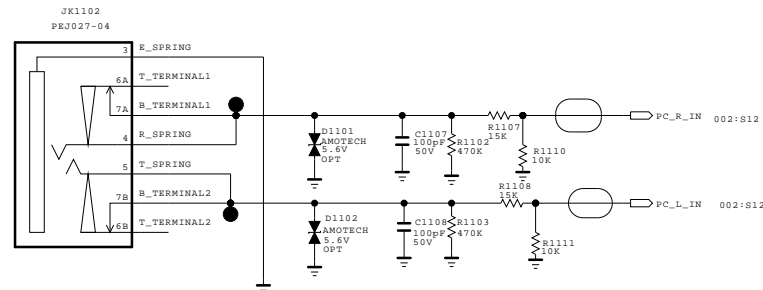
MODEL	GP3_S7LR	DATE	20110324
BLOCK	HDMI	SHEET	8

RGB / SPDIF / PC / HP

New Item Development
EARPHONE BLOCK

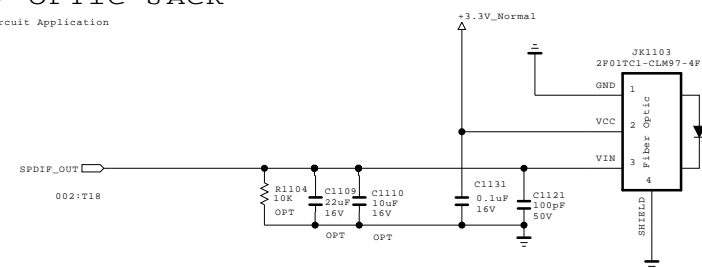


PC AUDIO

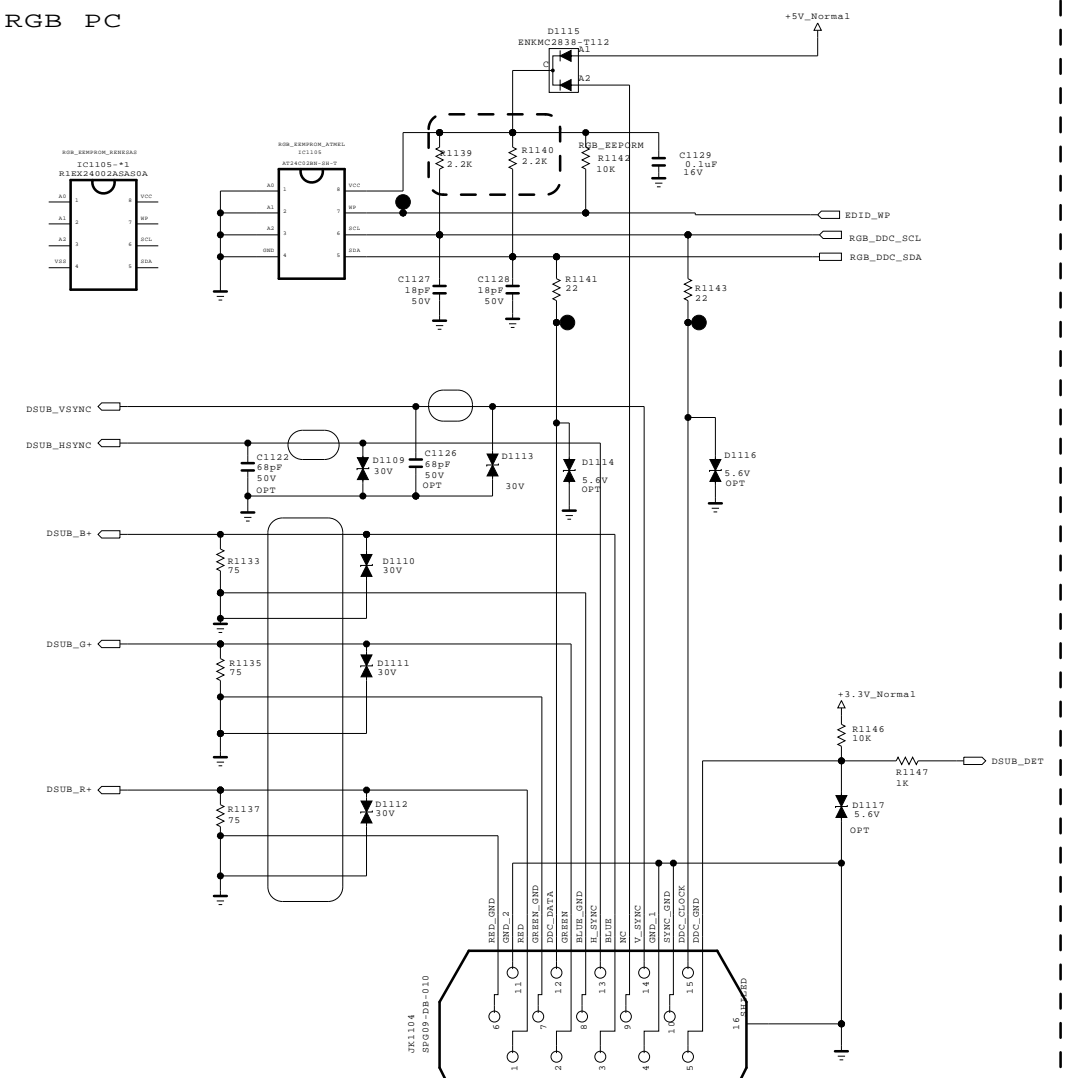


SPDIF OPTIC JACK

5.15 Mstar Circuit Application



RGB PC

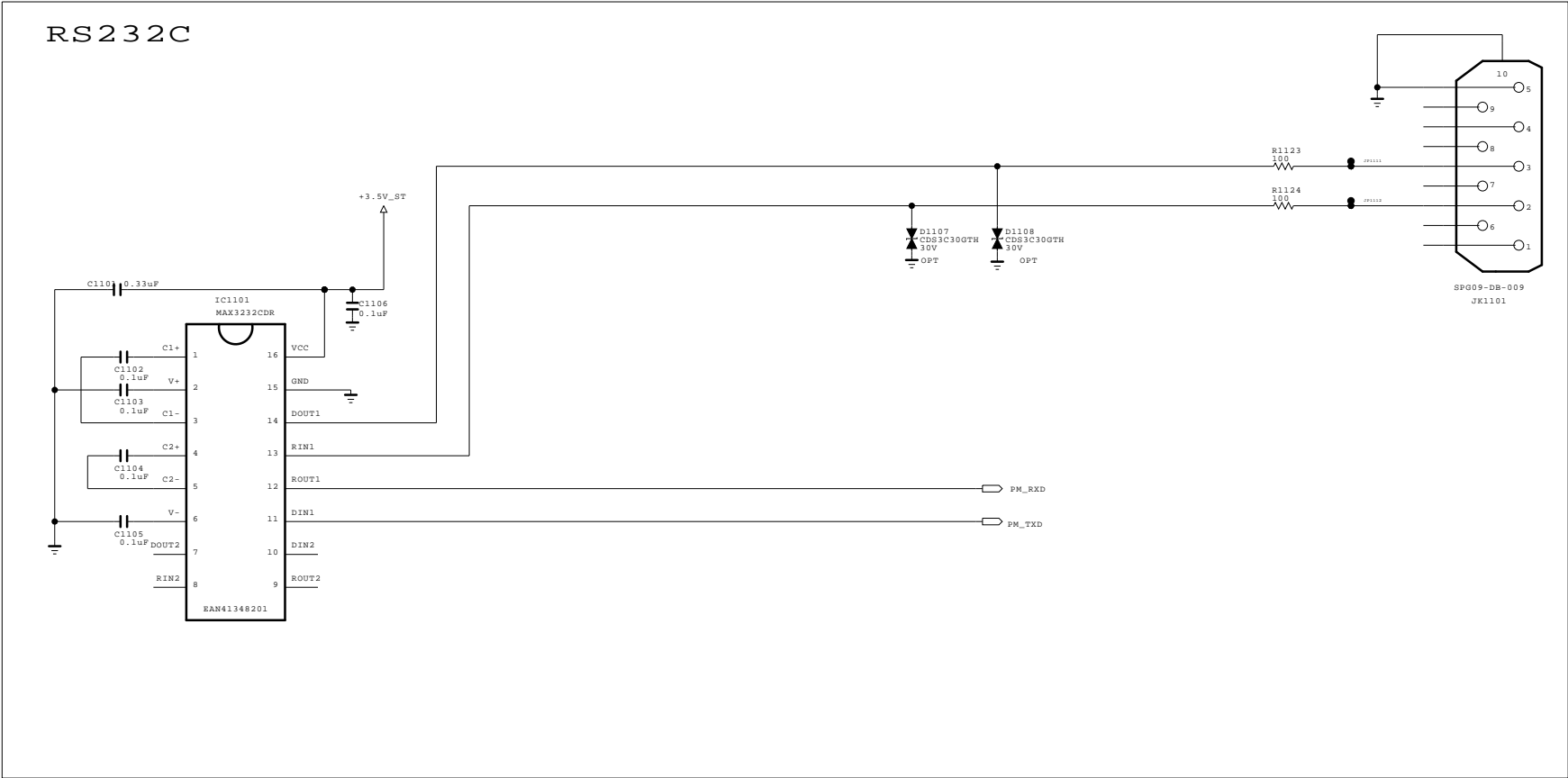




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SECRET
LGElectronics



MODEL	GP3_S7LR	DATE	20110324
BLOCK	RGB/SPDIF/HP	SHEET	9 /

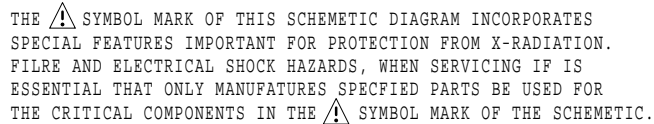


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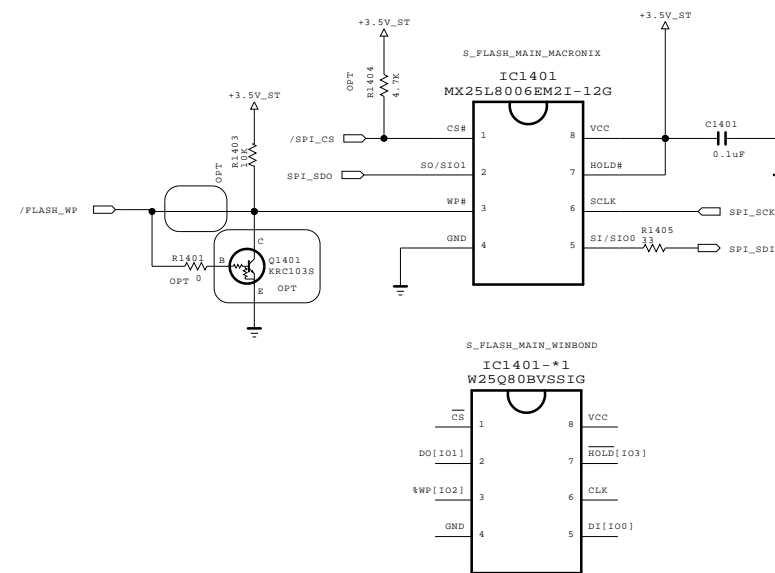
SECRET
LGElectronics





MODEL	GP3_S7LR	DATE	20110324
BLOCK	RS232C_9PIN	SHEET	10 /



MODEL	GP3_S7LR	DATE	20110511
BLOCK	DDR_256	SHEET	12 /



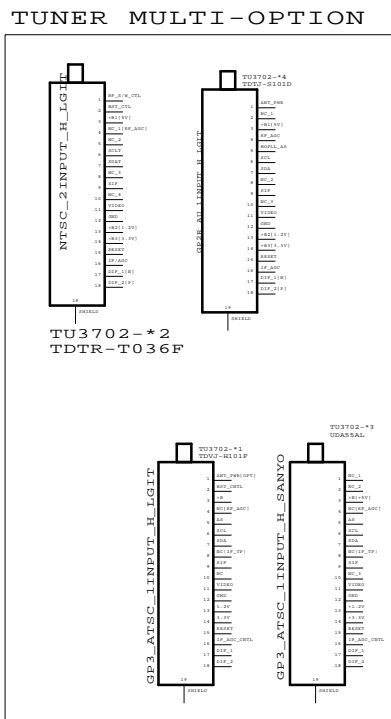
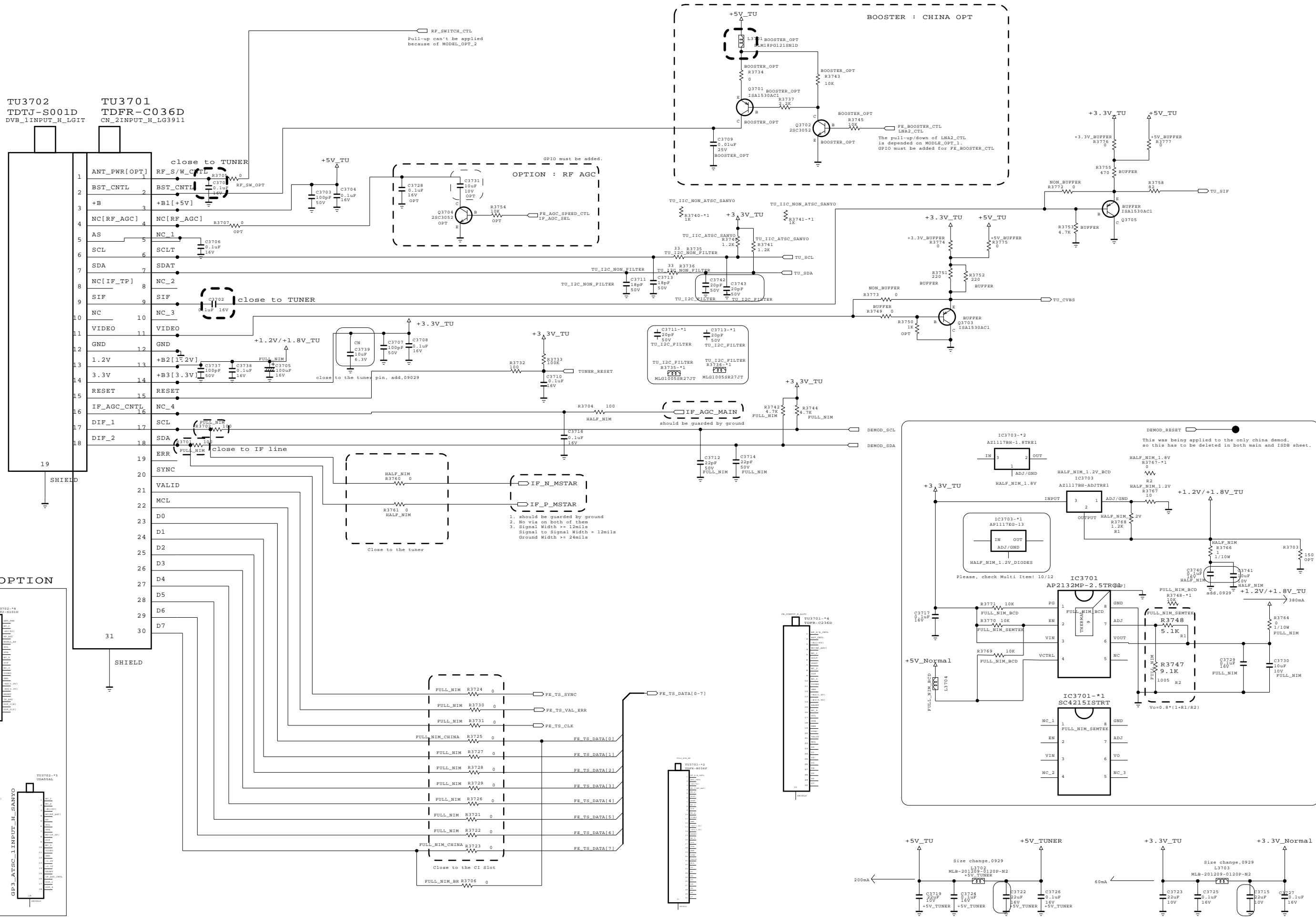
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SECRET
LGElectronics



MODEL	GP3 S7LR	DATE	20110324
BLOCK	SFLASH	SHEET	13 /

GP4R_GLOBAL_TUNER_BLOCK

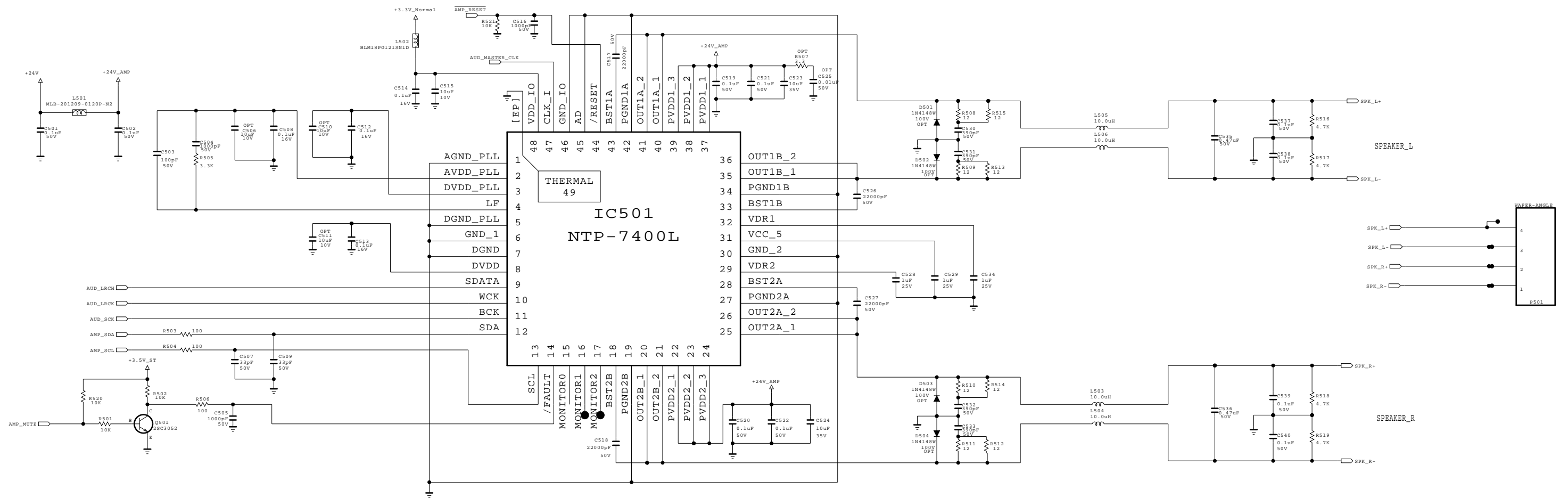




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SECRET
LGElectronics



MODEL	GP3_S7LR	DATE	20110511
BLOCK	TUNER_L	SHEET	14



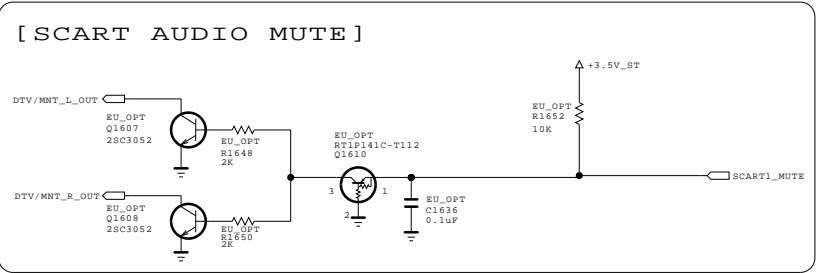
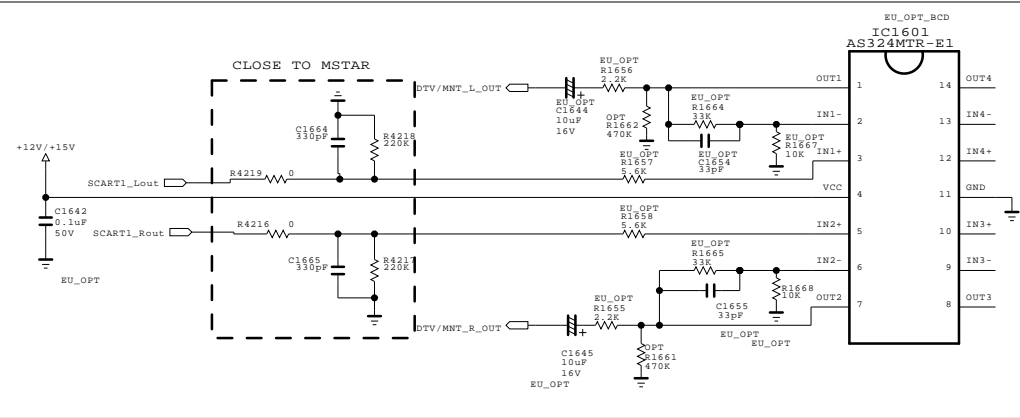
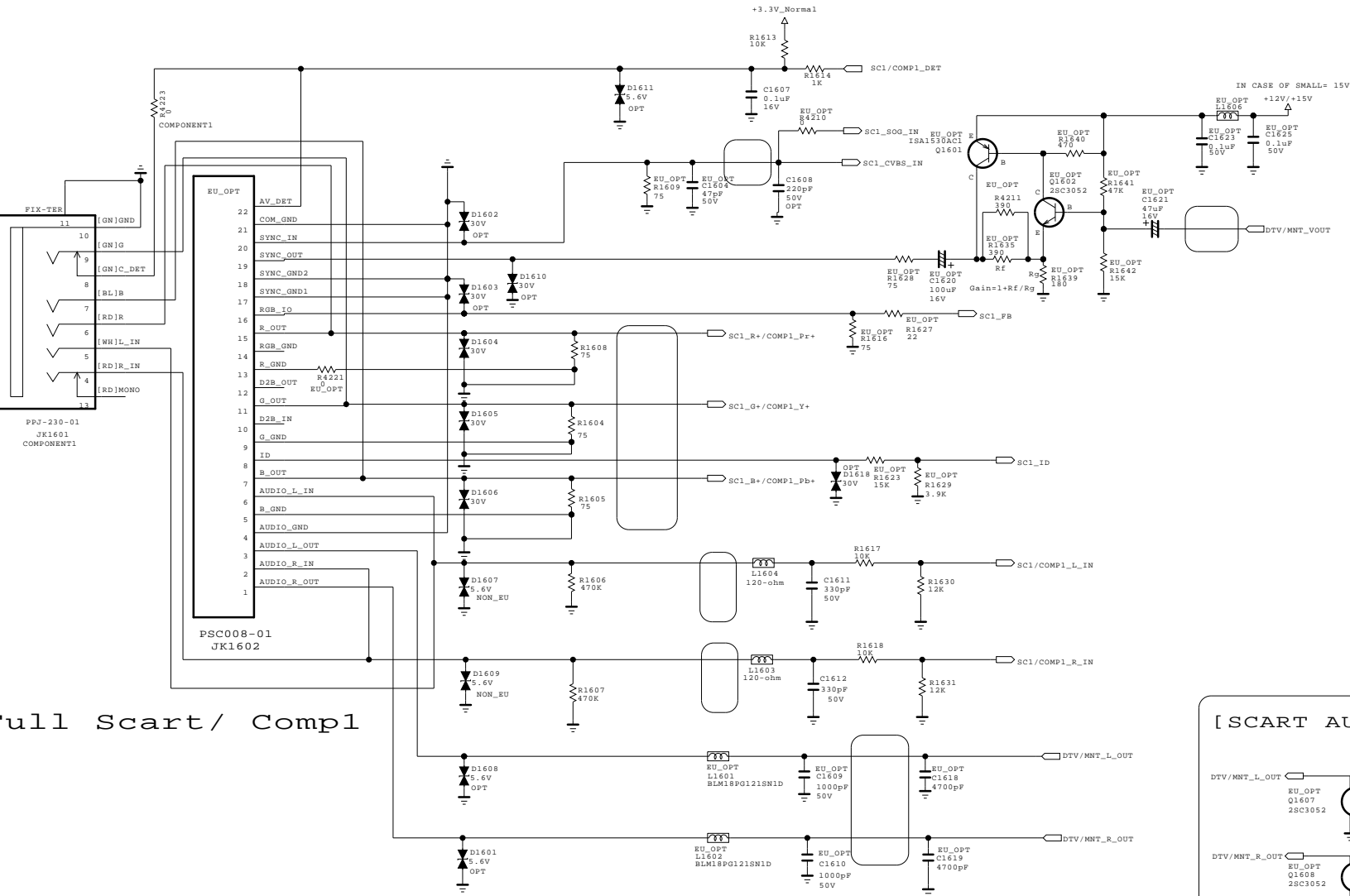
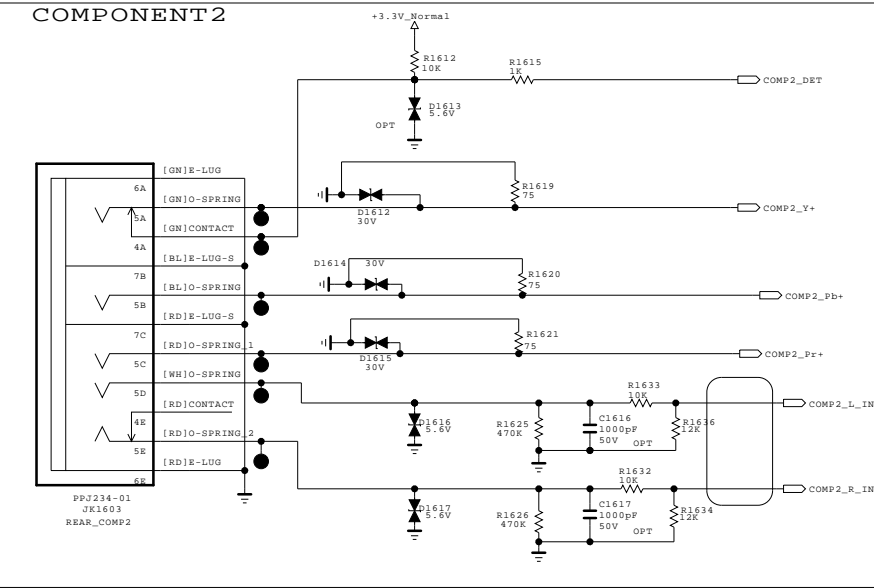
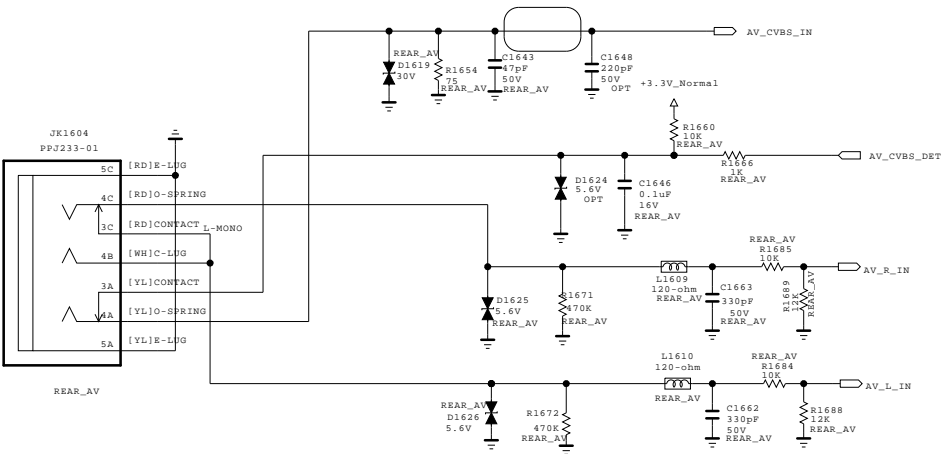
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 LG ELECTRONICS

MODEL	GP3 S7LR	DATE	20110324
BLOCK	NTP7400	SHEET	16 /

Rear AV



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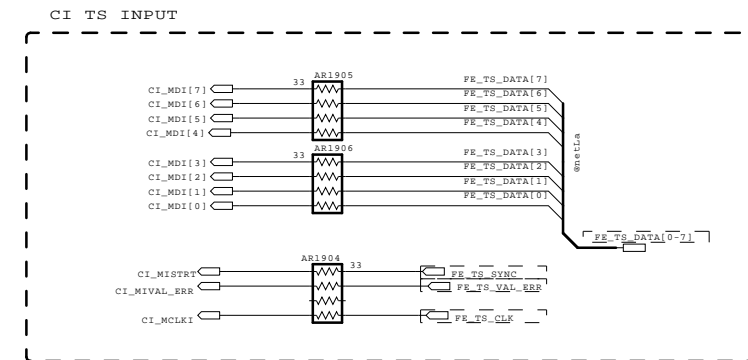
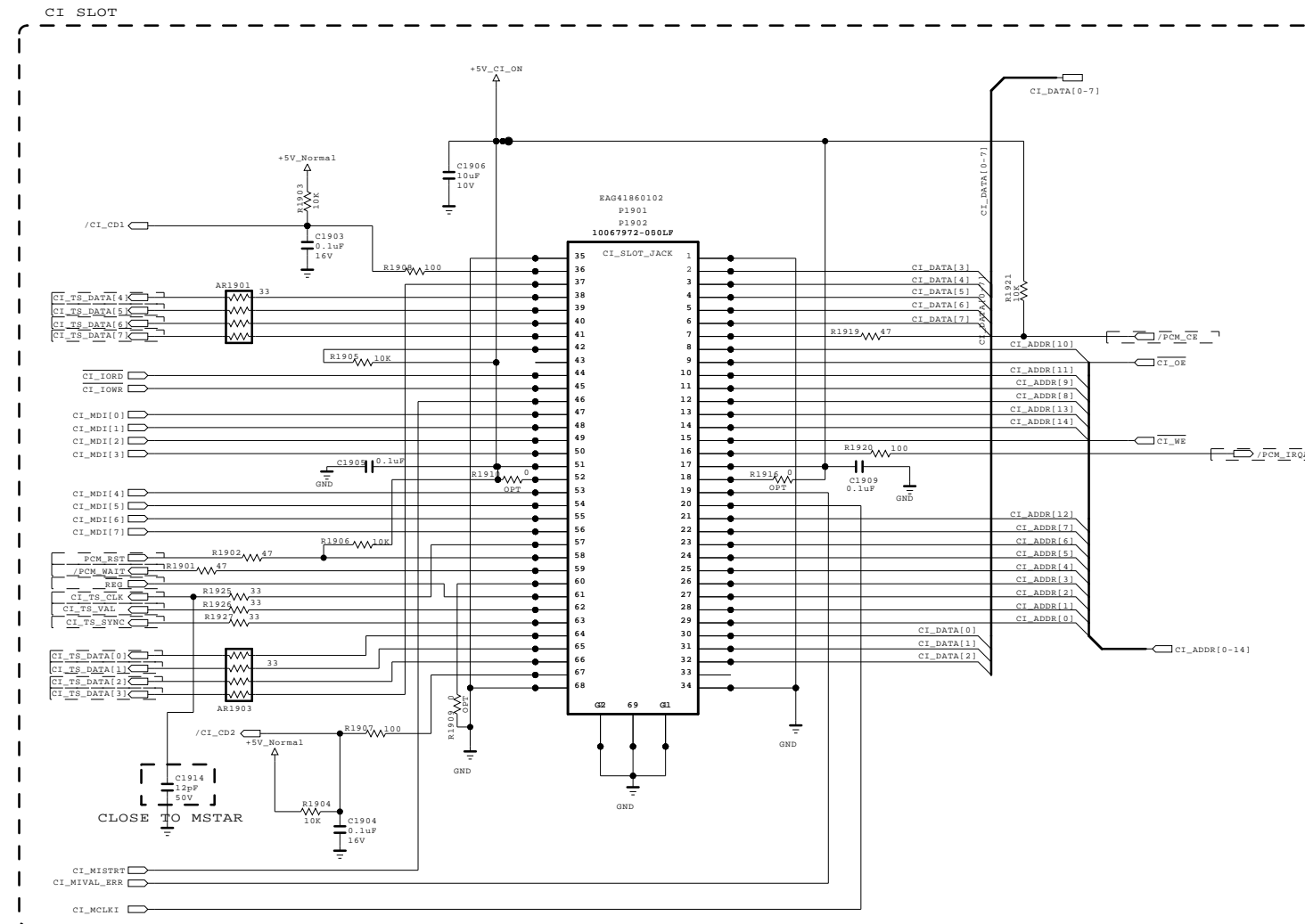
SECRET
LGElectronics



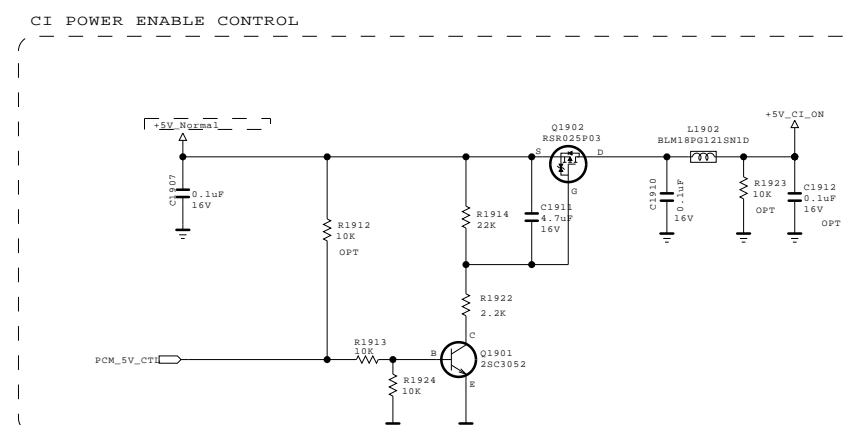
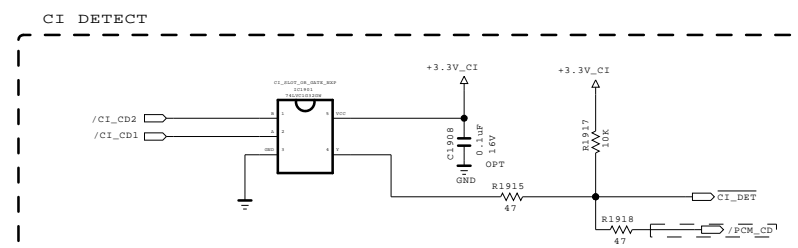
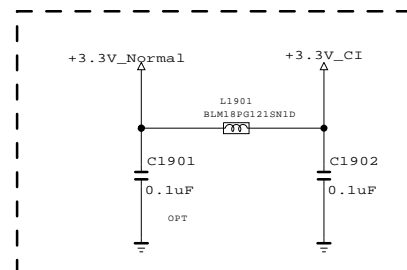
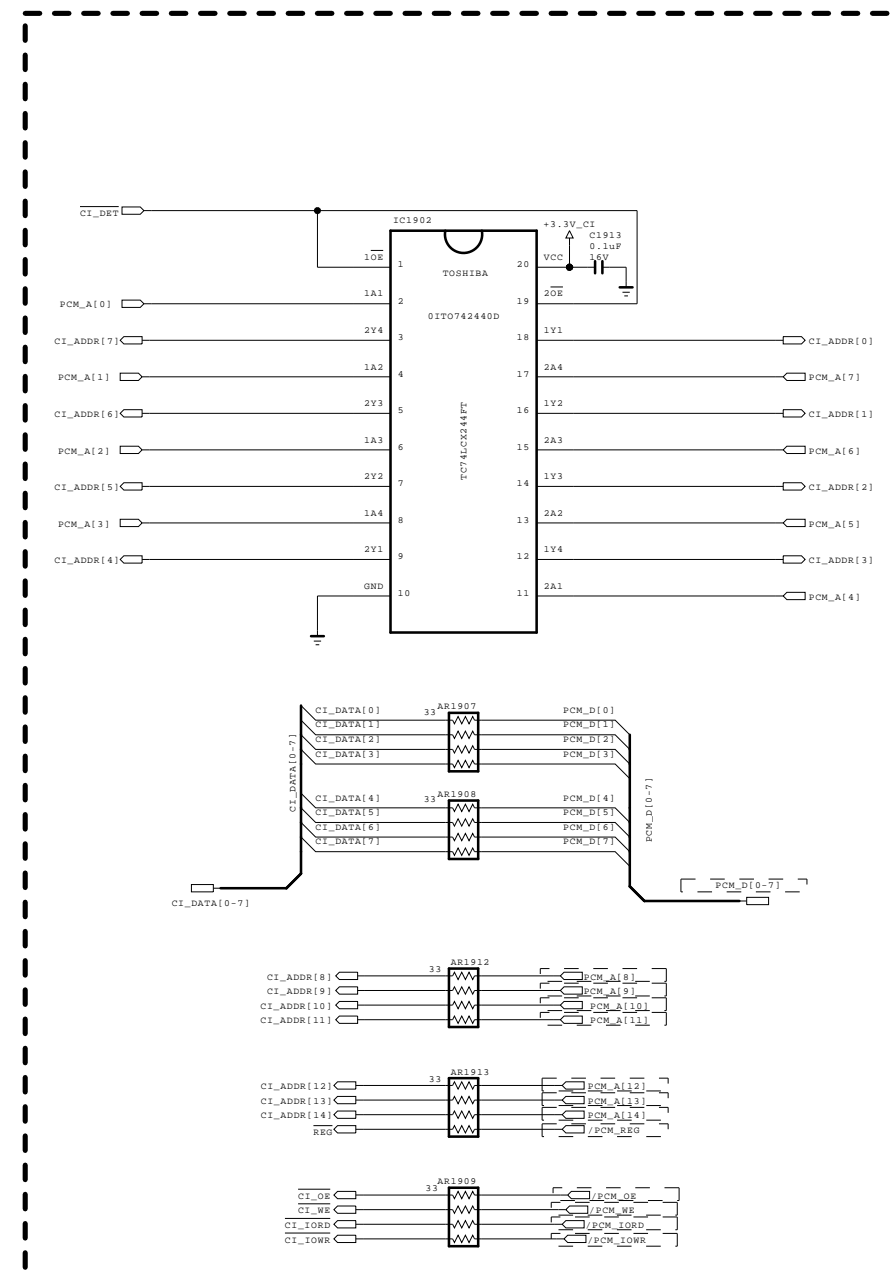
MODEL	GP3 S7LR	DATE	20110324
BLOCK	REAR JACK	SHEET	17 /



CI Region

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* Option name of this page : CI_SLOT
(because of Hong Kong)
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CI HOST I/F



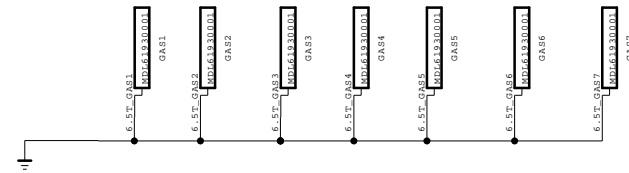
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SECRET
LGElectronics



MODEL	GP3_S7LR	DATE	20110324
BLOCK	PCMC1	SHEET	20 /

SMD GASKET



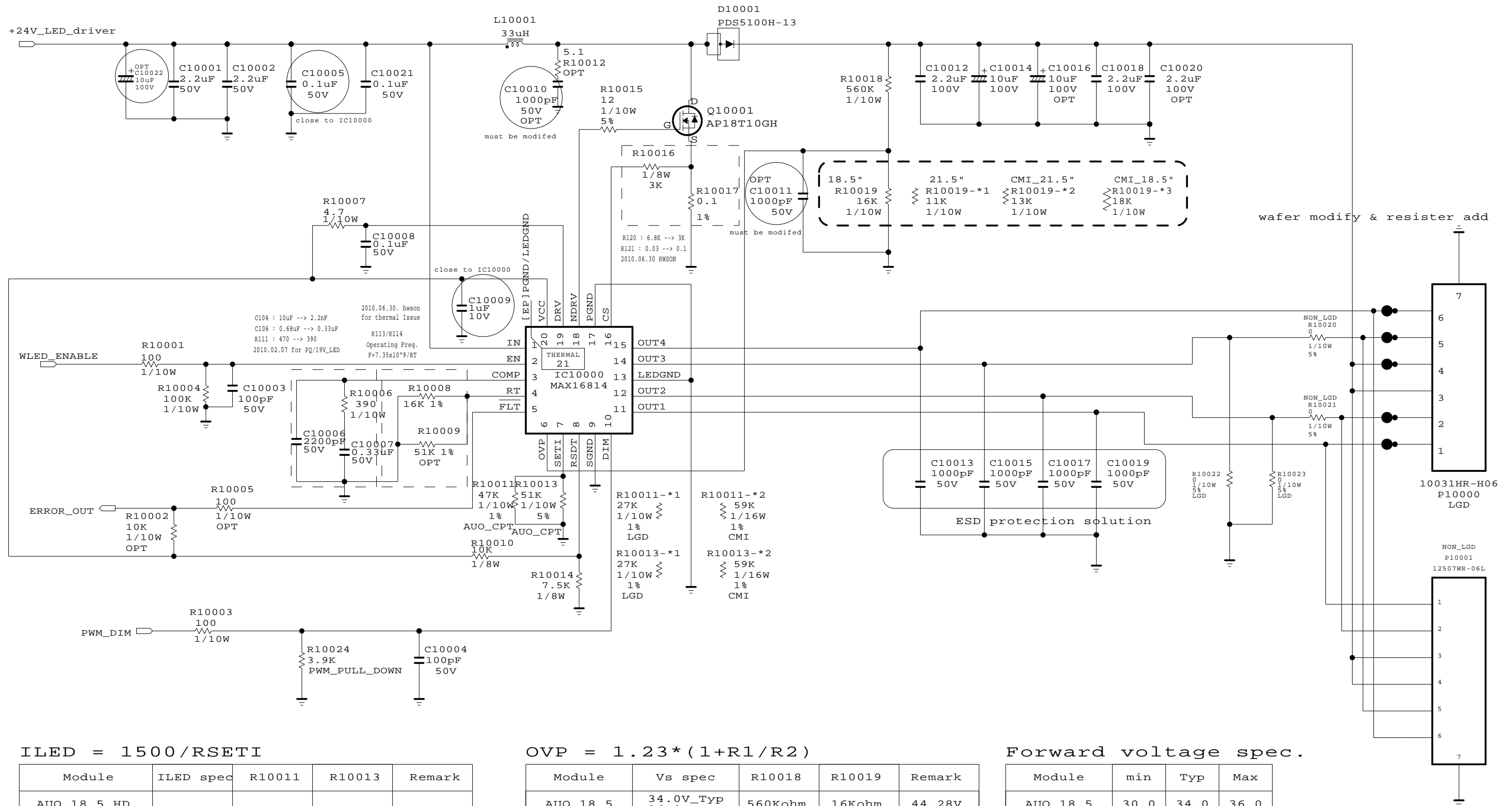
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SECRET
LGElectronics



MODEL	GP3_S7LR	DATE	20110324
BLOCK	SMD_GAS	SHEET	20 /

LED driver circuit for TN module



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ILED = 1500/RSETI
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Module	ILED spec	R10011	R10013	Remark
AUO_18.5_HD	60mA_Typ 63mA_Max	47Kohm	51Kohm	61.35mA
AUO_21.5_FHD				
CPT_21.5_FHD				
LGD_21.5_FHD	110mA_Typ 120mA_Max	27Kohm	27Kohm	111.11mA
CMI_18.5_HD	50mA_Typ 56mA_Max	59Kohm	59Kohm	50.85mA
CMI_21.5_FHD				

$$OVP = 1.23 * (1 + R1 / R2)$$

Module	Vs spec	R10018	R10019	Remark
AUO_18.5	34.0V_Typ 36.0V_Max	560Kohm	16Kohm	44.28V
AUO_21.5	52.8V_Typ 57.6V_Max	560Kohm	11Kohm	63.85V
CPT_21.5	52.0V_Typ 57.6V_Max	560Kohm	11Kohm	63.85V
LGD_21.5	51.2V_Typ 56.0V_Max	560Kohm	11Kohm	63.85V
CMI_18.5	33.0V_Typ 34.0V_Max	560Kohm	18Kohm	39.50V
CMI_21.5	44.8V_Typ 47.6V_Max	560Kohm	13Kohm	54.21V

Forward voltage spec.

Module	min	Typ	Max
AUO_18.5	30.0	34.0	36.0
AUO_21.5	48.0	52.8	57.6
CPT_21.5	46.4	52.0	57.6
LGD_21.5	–	51.2	56.0
CMI_18.5	28.0	33.0	34.0
CMI_21.5	39.2	44.8	47.6

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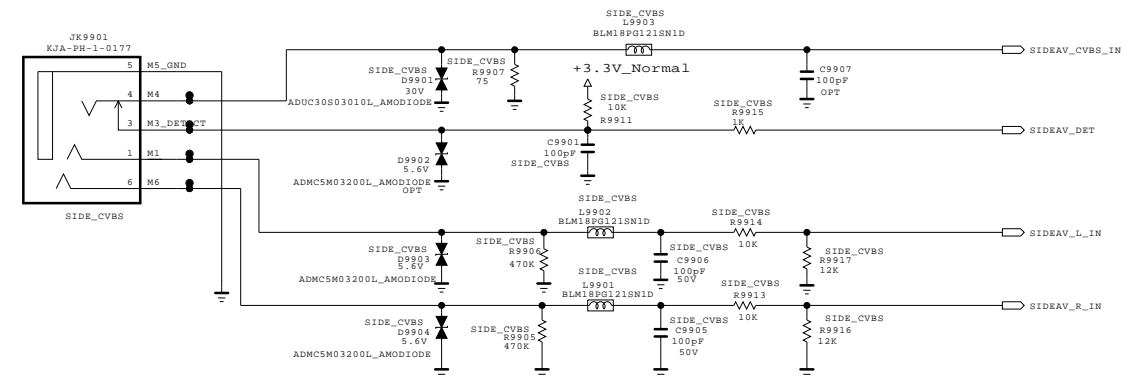
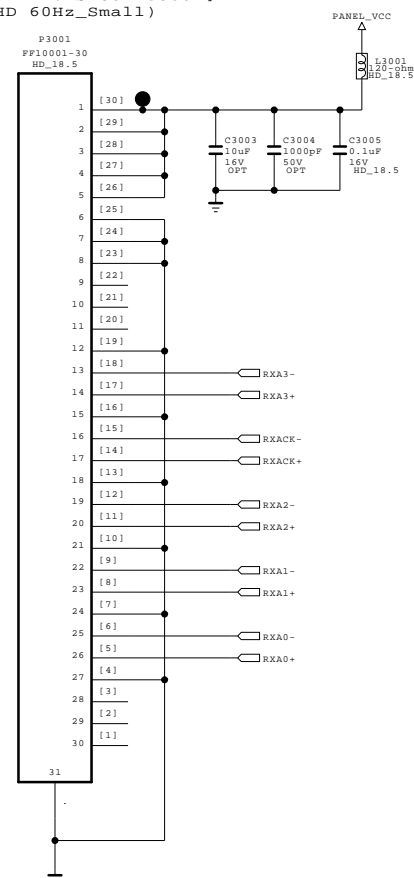
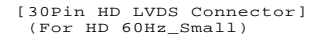
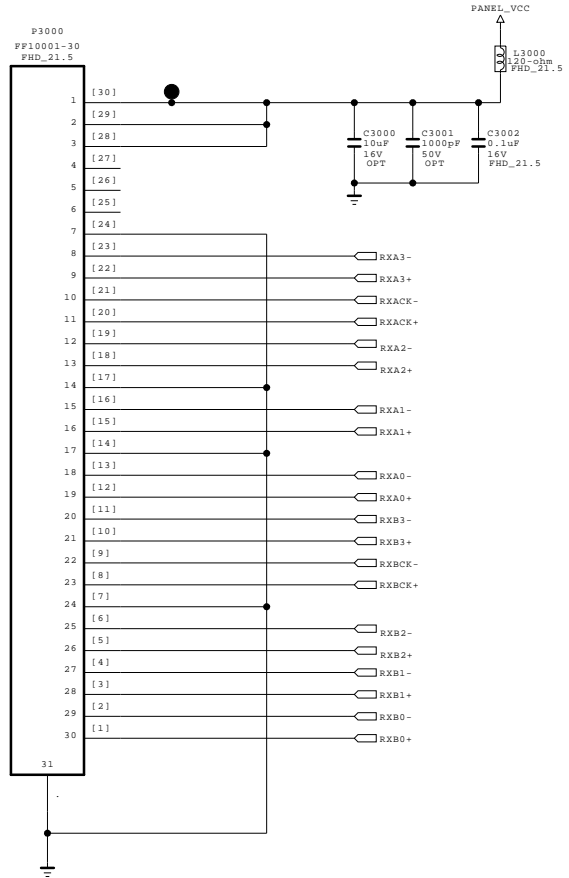
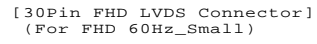
SECRET



LG Electronics



MODEL	S7LR SMALL TN	DATE	2011.05.09
BLOCK	LED driver	SHEET	29 /

LVDS_SMALL_TN



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LG Electronics



MODEL	S7LR SMALL TN	DATE	2011.05.10
BLOCK	LVDS&SIDE AV	SHEET	30 /



Block Diagram: S7LR

